No. 283 SEPTEMBER 1961 Vol. LXXI

THE ECONOMIC JOURNAL

THE QUARTERLY JOURNAL OF THE ROYAL ECONOMIC SOCIETY

Edited by C. F. CARTER *and* E. A. G. ROBINSON
Assisted by R. C. O. MATTHEWS

I. ARTICLES

On Optimising the Rate of Saving	A. K. SEN	479
Orderly Marketing or Competition? (The Blanket Manufacturers' Agreement)	P. L. COOK	497
Cost-induced Inflation and the Quantity Theory of Money	M. FLEMING	512
Mauritius: A Case Study in Malthusian Economics	J. E. MEADE	521
Basic Assumptions in Preference Theory	P. NEWMAN	535
A Note on the Rate of Interest and the Value of Assets	A. P. LERNER	539
Overinvestment during Prosperity	M. BROWN	544
A Geometrical Exposition of the Keynesian Supply Function	A. L. MARTY	560
Open-market Operations and the Portfolio Policies of the Commercial Banks	C. A. THANOS	566
Tax Incidence and Growth	D. DOSSER	572
Statics and Dynamics of the Euro-dollar Market	P. EINZIG	592
Own Rates of Interest	JOAN ROBINSON	596

II. REVIEWS (For a List of Books Reviewed see inside cover) 601

III. NOTES AND MEMORANDA

Mr Wells' Aggregate Supply Function:		
A Comment	E. C. H. VEENDORP and H. G. WERKEMA	634
A Further Comment	P. WELLS	636
Competition and Decreasing Costs Again	J. A. GHERITY	637
A Note on an Ambiguity in Supply Curves	A. A. WALTERS	639
Current Topics		640

IV. RECENT PERIODICALS AND NEW BOOKS 643

LONDON: MACMILLAN AND CO. LIMITED
NEW YORK: ST. MARTIN'S PRESS
PRICE FIFTEEN SHILLINGS NET

REVIEWS

PAGE

AITKEN (H. G. J.). *Taylorism at Watertown Arsenal. Scientific management in action* By P. Sargant Florence 618

ASHWORTH (W.). *An Economic History of England, 1870–1939* By A. J. Youngson 628

BOWEN (W. G.). *The Wage–Price Issue. A theoretical analysis* By G. L. S. Shackle 607

CARTTER (A. M.). *Theory of Wages and Employment* By G. L. S. Shackle 607

Domestic Income and Product in Kenya. A description of sources and methods with revised calculations from 1954–1958 By P. Deane 630

ELLS (R.). *The Meaning of Modern Business. An introduction to the philosophy of large corporate enterprise* By N. H. Leyland 617

FOG (B.). *Industrial Pricing Policies. An analysis of pricing policies of Danish manufacturers* By G. C. Archibald 620

GUILLEBAUD (C. W.). *Wage Determination and Wages Policy* By G. L. S. Shackle 607

HANNAN (E. J.). *Time Series Analysis* By A. D. Roy 625

HANSEN (A. H.). *Economic Issues of the 1960s* By C. W. Guillebaud 622

HARVIE (C. H.) and KLEVE (J. G.). *The National Income of the Sudan, 1955–1956* By P. Deane 630

HOWEY (R. S.). *The Rise of the Marginal Utility School, 1870–1889* By C. W. Guillebaud 606

LE HÊGARAT (G.). *Comptes Économiques Togo, 1956–1957–1958* By P. Deane 630

MATTHEWS (R. C. O.). *The Trade Cycle* By A. J. Brown 613

RICH (E. E.). *Hudson's Bay Company, 1670–1870. Volume II: 1763–1870* By W. T. Easterbrook 631

ROBERTSON (SIR DENNIS) and DENNISON (S. R.). *The Control of Industry* By G. B. Richardson 615

ROBSON (W. A.). *Nationalized Industry and Public Ownership* By M. V. Posner 623

ROSTOW (W. W.). *The Stages of Economic Growth. A non-communist manifesto* By H. J. Habakkuk 601

UHR (C. G.). *Economic Doctrines of Knut Wicksell* By R. Turvey 604

WEINTRAUB (S.). *An Approach to the Theory of Income Distribution* By G. L. S. Shackle 607

THE ECONOMIC JOURNAL

SEPTEMBER 1961

ON OPTIMISING THE RATE OF SAVING[1]

WHILE the search for the "optimum" rate of saving has not yet been vastly more successful than that for the holy grail, a number of possible methods of approaching the problem have emerged from the debate. The object of this paper is to examine some of these methods, and to discuss some other questions that seem to be relevant. The main conflict involved in the choice of the rate of saving is one between present consumption and future consumption, and naturally it cannot be solved without some intertemporal value judgments. In the first section we shall critically examine some methods of solving the problem that have been put forward in the economic literature. We shall also examine some attempts at avoiding the question altogether by some special assumptions. In the second section we shall try to make some general observations on the relationship between individual preferences and social judgments. In the final section we shall discuss some factors that limit the scope of the choice of the "optimum" rate of saving.

I. SOME TRADITIONAL METHODS OF INTERTEMPORAL JUDGMENTS

(a) *Utility Maximisation*

Easily the most widely used method of solution of the intertemporal allocation problem is to employ a utility function that is valid over time. In one of the earliest attempts at solving the problem, F. P. Ramsey used this tool of utility maximisation.[2] His assumption of an identifiable state of maximum possible satisfaction, which he referred to as "bliss," allowed him to obtain some very simple rules for determining the "optimum" rate of saving. Being rather sceptical of the usefulness of the concept of an identifiable "bliss," Professor Tinbergen has recently used a more general kind of utility maximisation.[3] His apparatus includes a utility function, a rate

[1] I am indebted to Mr. Maurice Dobb, Mr. Richard Goodwin, Professor Robert Solow and Mr. Stephen Marglin for their comments and criticisms.

[2] "A Mathematical Theory of Saving," ECONOMIC JOURNAL, December 1928. See also J. E. Meade, *Economic Analysis and Policy* (London, 1937), Part IV, Chapter III; and D. H. Robertson *Lectures on Economic Principles* (London, 1958), Chapter VI.

[3] "The Optimum Rate of Saving," ECONOMIC JOURNAL, December 1956.

of " pure " time discount and a growth formula (of the " Harrod–Domar " type) involving a (constant) capital coefficient and a variable saving rate. The saving rate is a policy variable, but the choice is assumed to be once for all, so that the saving rate once chosen is constant over time.[1] That saving rate is chosen which maximises the sum of the discounted social utilities for all time to come.

The main strength of the utility maximisation approach lies in the acceptability of the concept of diminishing marginal utility of increasing consumption. It is a widely observed phenomenon that we seem to care less for a unit of consumption when we are rich than when we are poor, and this provides a good common-sense ground against having too high a rate of saving, leading to an enormous inequality between the present and the future. The use of a specific utility function in the choice seems, however, to raise a number of other questions beyond this common-sense point.

There are two ways of defining " utility." We can use the term to represent a magnitude which we, according to our value judgments, wish to maximise. In this sense, this is just a synonym for the equally vague expression " welfare " defined by some " welfare function." Alternatively, and this is perhaps its more usual meaning, we can use the term as a synonym for the satisfaction of the people. In this sense an interpersonal comparison of utility is a non-normative comparison, done on some sort of behaviouristic ground, like comparisons of anger or courage.[2] If this latter definition is used, then we run into two problems, in trying to use utility-maximisation as our policy objective. First, it is difficult enough to find out the rate at which the marginal " utility " of consumption declines in the case of any given individual; to discover it for the whole society, over time, is practically impossible. Secondly, if utility is defined in this non-normative sense there is, of course, no necessary reason for treating it as the thing to be maximised. Indeed, factors normally not included in the term satisfaction, *e.g.*, national pride, altruism, preference for a " just " distribution of satisfaction between different generations of the nation, have considerable relevance to the problem, and total utility maximisation can no longer be axiomatically treated as the thing to be achieved.

We can, of course, use the term " utility " in the other sense, viz., to mean the magnitude that is defined by the welfare function given by our value judgments, which becomes automatically the thing to be maximised. But then, with this definition we cannot *prove* that the " marginal utility "

[1] In an unpublished paper, " The Optimal Growth Rate for an Underdeveloped Economy," Mr. Richard Goodwin tries to find out the optimal *time path* of the rate of saving, rather than one optimal *rate* of saving for all time to come. Mr. Goodwin uses the same type of utility function as Professor Tinbergen, but his results are very different, which seems to suggest that it is unfortunate to put the question in terms of the choice of a rate of saving once for all. One of the more exciting aspects of the problem of the rate of saving is the way it changes, or should change, with the process of development.

[2] See I. M. D. Little, *A Critique of Welfare Economics* (London, 1957), Chapter IV.

of consumption will definitely decline with increasing consumption. We cannot even be sure that "utility" will depend *only* on consumption. This problem is present in the other case as well, but it is much more obvious with the second definition. Capital-goods production can satisfy (and, in the case of many nations, has satisfied) the self-respect of nations, and may also affect the ability of a nation to help other countries. In spite of these questions, however, it seems reasonable to expect (*a*) that the main determinant of social "welfare," according to the value judgments normally held, will be the level of consumption (or that of *per capita* consumption), and (*b*) that the common-sense belief in diminishing marginal "utility" will have some validity in this sense as well. But how are we going to choose the precise utility function to be used? There are an endless number of functions with a negative second derivative (*i.e.*, with diminishing marginal utility), and our results will depend considerably on the function actually employed. One method of choosing a utility function will be to place the problem before the public for a political debate. I must confess, however, that the possibility of a lively political debate on such questions as "Should we maximise the logarithm of consumption?" appears to me to be limited. The trouble with the "utility" approach, it seems to me, is that it introduces value judgments in such a way that the only people who can appreciate the meaning of these judgments are those who can be described as "professionals" in the field. In a theoretical study a utility function can, of course, be used to make some general points about the nature of the choice,[1] but its use in actual saving decisions is very difficult. A popular ratification of a utility function seems to be out of the question, and it is not clear how, in the absence of political ratification, the planners should choose between different utility functions of the appropriate type. The temptation is to use a utility function that can be handled most comfortably, and we find ourselves in a slightly curious position where the implicit policy objective is making the planner's life comfortable, which is a worthy aim, but a limited one.

[1] This was partly the object of Professor Tinbergen, and is also that of Mr. Goodwin in the unpublished paper referred to above. Since this article was written, Professor Tinbergen has published another paper on the subject, *viz.*, "Optimum Savings and Utility Maximization over Time" (*Econometrica*, April 1960), where he himself makes an interesting criticism of approaching the problem from the utility angle. He shows that if the elasticity of marginal utility with respect to "surplus consumption," *i.e.*, consumption beyond the subsistence level, is low ($\nu \leqslant 1$), then "it looks promising, at any time, to save 'as much as possible'—*i.e.*, everything beyond the subsistence level of consumption, because a higher contribution to 'satisfaction' (utility) will be obtained 'later.' But this 'later' is continually postponed and in fact never occurs" (p. 487). This particular result is apparently independent of the value of the capital-output ratio, and is not affected even if the capital-output ratio is dependent on the rate of savings. Since statistical investigations so far made indicate a low value of the relevant elasticity (ν), Professor Tinbergen concludes that no "clue for the establishment of an 'optimum savings programme' can be derived from the simple maximization over time of instantaneous utility" (p. 488). It should be noted that here Professor Tinbergen uses the term "utility" in the non-normative sense, so that its application to a welfare problem involves the difficulties that we have discussed above.

(b) *"Pure" Time Preference*

The concept of a "pure" psychological discount of the future is of respectable antiquity. A distant object "looks" smaller, and we tend to value, it is claimed, a unit of consumption in the future less than we value the same now. There is a possible ambiguity in the use of this approach. If the difference is only due to the distance in time, then the position is symmetrical. A future object looks less important now, and similarly, a present object will look less important in the future. While it is true that the decision has to be taken now, there is no necessary reason why to-day's discount of to-morrow should be used, and not to-morrow's discount of to-day.

Ramsey was explicit in his rejection of "pure" time discount as something that "arises merely from the weakness of imagination," [1] and Sir Roy Harrod has described "pure time preference" as "a polite expression for rapacity and the conquest of reason by passion." [2] Indeed, in so far as the "pure" discount arises merely due to "irrationality," its use in a choice that aims at being "rational" is unjustifiable. We should, however, examine two other possible lines of argument in defence of "pure" time preference. From the point of view of the individual, the discount may not be purely "irrational," for, the more distant the future, the less is his chance of being alive. Unless we assume that a person identifies his heirs' interests with his own, a "pure" time discount is not an unreasonable assumption from the point of view of the individual. This does not, however, make its use in the determination of the social optimum rate of saving justifiable, unless we assume that the present generation's interests are all that matters. A second line of argument is put forward by Professor Otto Eckstein. He argues that "a social-welfare function based on consumers' sovereignty must accept people's tastes including their intertemporal preferences." [3] I am not sure that the principle of "consumers' sovereignty" is very meaningful in this context. The consumers involved are not merely those of the present generation, but also those yet to be born and those who are now too young to express any preference. Of course, the views of the present generation may prove to be the decisive factor in this choice, for the simple reason that the views of the coming generations are not yet available; but this is a very different argument from that of "consumers' sovereignty." In Section II we shall discuss the method of using the values of the present generation for the choice, and shall find that even this does not justify the use of the individual's "pure" time discount.

There is, however, an element in the "pure" time discount that might

[1] *Op. cit.*, p. 543. See also M. H. Dobb, *Essay on Economic Growth* (London, 1960), Chapter II.

[2] *Towards a Dynamic Economics* (London, 1948), p. 40. See also ECONOMIC JOURNAL, June 1960: "Second Essay in Dynamic Theory."

[3] "Investment Criteria for Economic Development and the Theory of Intertemporal Welfare Economics," *Quarterly Journal of Economics*, February 1957, p. 75.

be of significance for the social choice. One of the reasons for preferring a unit of present consumption to the same in the future is the uncertainty associated with the future. This might arise for reasons other than the possibility of death of the present consumers. Now, to a certain extent this uncertainty (say, about production) is present even for the society, and if an individual discounts the future yields because he does not know whether these yields will be obtained, the same argument may apply in the case of the society as well. It should, however, be added that: (*a*) the uncertainty facing an individual is not the same as that facing the society as a whole, and (*b*) the individual's *assessment* of the uncertainty might be wrong because he does not know how other individuals are acting. Thus, this partial justification of a time discount is not the same as justifying the use of the individual's " pure " time discount in the social optimisation problem.

(c) *Some Partisan Solutions*

One possible way of avoiding the question of intertemporal judgments is to take a distinct stand, completely one way or the other. One can, for example, argue for the maximum possible saving allowed by political considerations, or the maximum possible consumption allowed by the maintenance of a " decent " rate of growth. Another possible line is to avoid the question by leaving it entirely to the individual savers on some political grounds. For example, Professor Bauer argues:

> " I regard the extension of the range of choice, that is, an increase in the range of effective alternatives open to the people, as the principal objective and criterion of economic development; and I judge a measure principally by its probable effects on the range of alternatives open to individuals. This implies that the process by which development is promoted affects the assessment, and indeed the meaning, of the result. The acceptance of this objective means that I attach significance, meaning, and value to individual acts of choice and valuation, including the individual time preference between the present and the future; and my position is much influenced by my *dislike of policies or measures which are likely to increase man's power over man, that is to increase the control of groups or individuals over their fellow men.*" [1]

There are two distinct elements in the above argument. One involves a set of assumptions about the way the economic world behaves, *e.g.*, whether the most effective way of extending the " range of choice " is to leave the decisions to the market forces or whether the market mechanism properly reflects the " individual time preference between the present and the future." The other is a straightforward rejection of any policy that increases the power of the society, or the State, over the individual. Many empirical questions can be raised about the first line of the argument. It is not obvious that a higher rate of saving generated through interference with the

[1] *Economic Analysis and Policy in Underdeveloped Countries* (London, 1957), pp. 113–14; *italics* mine.

market mechanism will not, in the long run, extend the "range of choice" farther than would happen in the absence of interference.[1] It also seems doubtful that the "individual acts of choice and valuation" reflect the time preference the individuals would like to apply in the choice between the present and the future, and Section II of this article will be devoted to this very question. On the other line of argument, however, there is not much that one can say, except that many of us find the role of the State (depending on the nature of the State) not as much of an evil as Professor Bauer seems to find. It is not possible to refute his argument by pointing out that "man's power over man" is sometimes greater in a system of free enterprise than in a system where the State plays an important role, for Professor Bauer explains that what he really objects to is "direct compulsion, as distinct from social compulsions affecting individual choices."[2] If one has an enormous dislike of "direct compulsion" as opposed to "social compulsion," then Professor Bauer's stand is the natural one and cannot be criticised for internal inconsistency. And, of course, if this stand is taken, the whole problem of the "optimum" rate of saving can be dismissed, for we are not allowed to have any alternative to the rate of saving that will emerge from individual decisions.

Horvat's Solution

Another way of avoiding the problem of conflicting values can be observed in the criterion suggested by Mr. Branko Horvat.[3] His approach is based on the dominating influence of the "absorptive capacity" of an economy. Given the factors of organisation, knowledge, requirements of personal consumption, etc., an economy can absorb only a limited amount of investment in any period of time. As investment is expanded, soon a point is reached where marginal investment leads to a negative return. Mr. Horvat defines the "optimum" investment as "*the maximum investment which may be productively applied* in a given economy."[4]

While this criterion focuses attention on an important aspect of the problem,[5] it is undoubtedly a very partisan criterion. The level of maximum

[1] Cf. Mr. P. J. D. Wiles, ". . . in the Soviet economy there are, as it were, always too few hairbrushes and too many nailbrushes in view of the resources available, while in a 'capitalist' economy this proportion is always more nearly right. But the production of both these articles is growing at about 10 per cent per annum in U.S.S.R. and at about 2 per cent per annum in 'capitalist' countries. In the end the Soviet citizen will be supplied better even with hairbrushes" ("Scarcity, Marxism and Gosplan," *Oxford Economic Papers*, October 1953, pp. 315–16). One need hardly add that the rate of saving is one of the most important influences on the rate of growth, so that the question cannot be dismissed merely in terms of the widening of the "range of choice."

[2] *Op. cit.*, pp. 121–2.

[3] "The Optimum Rate of Investment," ECONOMIC JOURNAL, December 1958.

[4] *Op. cit.*, p. 753.

[5] One of the limitations of Professor Tinbergen's solution referred to above was his assumption of a constant capital coefficient independent of the saving rate. See in this connection "A Note on Tinbergen on the Optimum Rate of Saving," by the present writer, ECONOMIC JOURNAL, December 1957; also Branko Horvat, "The Optimum Rate of Saving: A Note," ECONOMIC JOURNAL, March 1958.

productive investment provides, it seems to me, an important *upper limit* of investment; while there are excellent reasons for not trying to invest *more* than this amount, it is not obvious why a rate of investment *below* this should be ruled out. Before investment becomes completely unproductive, it will have a very low rate of return, and a unit of consumption sacrificed at the margin may not be recovered in less than, say, several hundred years. Would we, then, be justified in undertaking this piece of investment with a *net* return rate less than, say, a fraction of 1% per year? Mr. Horvat's model is one of infinite social patience, which eliminates the problem of intertemporal preference altogether.

Mr. Horvat does, at one stage, consider the method of "period maximisation," but concludes that maximisation has to be carried out for an infinite period of time, as there is "logically no possibility of confining it to a single period." [1] This amounts to pushing the economy on to the path of maximum growth. This argument for maximising the growth rate is rather weak. It may not be possible to ignore altogether the future beyond the maximising period, but this is not a sufficient justification for treating all units of future consumption as *equally* important, no matter how distant it is. Mr. Horvat uses a different argument in a later section, viz., that a sacrifice of present consumption will lead to a larger volume of additional consumption within a short period.[2] This is undoubtedly so in his arithmetical example with a constant capital coefficient of 3,[3] but cannot, of course, be treated as a ground for maximising the growth rate in all cases.

Mr. Horvat has an appendix on the proposition that "any movement off the path of maximum growth is equivalent to the diminution of the welfare for some individuals without any increase in welfare for anybody else." [4] His reasoning can be put in the following way. On the path of maximum growth, marginal productivity of investment is zero, so that "the marginal utility of investment" is zero too. Since the latter must be equal to the marginal disutility of saving, this, too, must be zero. Once this becomes zero it will never again be positive, since with the rise in consumption over time there is a tendency for the marginal disutility of saving to fall rather than to rise. Hence, once an economy has chosen to be on the path of maximum growth, there will be no point in moving away from it. Thus, the proposition is correct, provided the economy happens to be on the path of maximum growth on grounds of utility calculus, *i.e.*, if actually all the

[1] *Op. cit.*, p. 757.

[2] *Op. cit.*, pp. 758–60. There seems to be a certain amount of ambiguity here. "If it were for only 1 or 2% of social product to be added annually to already existing investment funds, the whole thing might have practical value. . . . It is exactly those 1 or 2% which are needed" (p. 758). For what? Maximising the growth rate? Certainly not, unless it is being *implicitly* assumed that when an expansion of more than 1 or 2% is attempted, the marginal capital–output ratio rises abruptly from the mentioned value of 3 to infinity.

[3] *Op. cit.*, p. 759.

[4] *Op. cit.*, Appendix II, Equivalence Theorem, pp. 766–7.

present wants *have been* met. It is, however, obviously no argument for moving *towards* the path if we happen to be away from it. This may not be obvious from the wording of the proposition, which is put in terms akin to those used for genuine Paretian conditions. In fact, using Horvat's line of argument itself, it can be shown that Horvat's "optimum" cannot be the optimum for the world as we know it. The marginal usefulness of consumption is not in fact nil in any known community, so that the marginal disutility of saving is positive. And since the "choice of maximum growth implies that the marginal disutility of saving is zero," [1] no existing economy should choose the path of maximum growth. This way of looking at the problem makes, therefore, the establishment of what Ramsey called "bliss" to be a necessary condition for choosing Horvat's "optimum."

One can, of course, leave out all this utility calculation, and simply make the maximisation of growth the policy objective, irrespective of the present level of consumption. Then the solution of the question becomes one example of the "partisan" approach to the question. The rest of the paper is meant only for those who believe that there is a genuine conflict to be faced in the problem, that is, those who are not ready to make one of those overriding value judgments, in one direction or the other, that eliminate the problem altogether.

II. Individual Preferences and Assumed Values

If democracy means that all the people that are affected by a decision must themselves make the decision (directly or through representatives), then, clearly, there can be no democratic solution of the problem of the "optimum" rate of saving. The rate of saving chosen to-day influences not merely the division of consumption between early and late dates for the same group of people, but also that between the consumption of different generations, some of which are yet to be born. This also disposes of, as we have mentioned earlier, any possibility of applying the principle of "consumers' sovereignty" to this problem. From this it does not, of course, necessarily follow that decisions made by some authoritarian body will be more "fair" to future generations than those made by the present generation voting collectively.[2] What would, however, be of very considerable interest to investigate is whether there is any reason to believe that individual decisions made by members of the present generation through the market mechanism would give us the same result as the one they would themselves choose if they were voting collectively on the question. This also involves the question whether the "pure" discounts revealed by individuals in their personal choices indicate the present generation's views of the weights to be attached to the consumption of the present generation and that of future generations.

[1] Horvat, *op. cit.*, p. 767.

[2] Those who believed that "political leaders" take a relatively less-biased view of the future, being concerned about their reputation to future generations, may question this proposition.

A number of difficulties can, of course, be easily pointed out. The distribution of votes in a political decision need not conform to the distribution of the capacity to save in the market mechanism. Thus, the over-all discount emerging from the market mechanism may not have much in common with the decision that will emerge from political voting. There is also a problem of knowledge. An individual's saving rate depends on the future prices, which are affected by the saving rate of others, and no one individual, acting separately, has any means of knowing what other individuals intend to do.[1] So the individual action must be based on imperfect knowledge, whereas a consistent political programme placed before the community need not have this particular imperfection.

A more fundamental question is involved in Rousseau's distinction between the "general will" and the "will of all," which we do not wish to go into here.[2] We should, however, point out that there is no reason to believe that a man acting as a responsible participator in a political debate will express exactly the same preferences as he does in his day-to-day life. This dichotomy in people's behaviour is very clearly noticeable in many fields, *e.g.*, in the attitude of the people to regulations restricting the traffic. The assumption of a consistent set of values serving as the basis for action of individuals is most unlifelike.

Quite apart from these difficulties, however, there is, it seems, a fundamental problem involved in individual and social decisions arising from the different nature of the choice in the two cases. Let us assume that the individual has no imperfection of knowledge about how much others will save; he knows the exact amounts. Let us also assume that he is an individual with a constant and consistent set of preferences, so that the way he values alternative possibilities does not vary according to his position, *i.e.*, according to whether he is acting in a political or a non-political capacity. He acts equally responsibly in all cases. The question is whether, even in these special circumstances, his saving decisions will properly reflect his views on how much should be saved by the members of the present generation for the future.

The Isolation Paradox

Now, this individual faces a choice, let us say, between one unit of consumption now and three units of consumption in twenty years time. He knows, for some reason, that in twenty years he will be dead. He cares for

[1] See J. de V. Graaff, *Theoretical Welfare Economics* (London, 1957), Chapter IV. There may also be some "external economies." A saver gets only a few per cent interest on his capital, the rest goes to others in the community. A person may, thus, gain from other people's saving, and this "external economy" may provide a need for collusion. On the general question of this kind of external relationships see W. J. Baumol, *Welfare Economics and the Theory of the State* (London, 1952).

[2] For a very lucid discussion of this question, see Kenneth J. Arrow, *Social Choice and Individual Values* (New York, 1951).

the future generations, but it is not enough, let us assume, to make him sacrifice a unit of his present consumption for three units for the generation living in twenty years' time. He decides, therefore, to consume the unit; but another man comes and tells him that if he saves one unit of consumption the other man will also save one unit. It would not be, by any means, irrational for the first man to change his mind now and to agree to save a unit. The gain to the future generation is much greater, and he can bring all this about by sacrificing himself only one unit of consumption. So he may, without any inconsistency, act differently in the two cases. This is a problem we may face in much larger scale in contrasting individual saving decisions with a political decision taken by the whole society. This paradox, which we shall refer to as the "isolation paradox" for the rest of the paper, does not arise due to any inconsistency of values, but to the differences in the nature of the choice involved in the two cases.[1]

Before we proceed farther, it may be useful to discuss a possible misunderstanding that may arise in interpreting the above case. Put in this form, it looks as if the conflict arises because the person concerned values the gains of the future generations but does not care at all about the sacrifices of the others in the present generation. This is not so. The possibility of the conflict is present whenever the person values the sacrifice (of one unit, in the above example) of present consumption of others less then the corresponding gain (three units) of the future generation, so that he would like them to save more.[2] In our example the person may value each of the three units of consumption of the future generation as equal to 0·3 unit of his own consumption now; and he may value the consumption of one unit by others in the present generation as equal to as much as 0·7 unit of his own consumption. If he saves one unit along with another person saving the same amount they produce (assuming the same rate of return) six units for the future generation, which he values at 1·8 units of his own consumption. And the sacrifices necessary for this is 1·7 units in his valuation. So while he is not ready to make the sacrifice alone, he is perfectly prepared to do it if others are ready to join in. *This possibility of the apparent paradox is present whenever his relative valuation of others' consumption is such that he would prefer them to sacrifice some consumption for the future generations; and sacrificing something himself might, because of the indivisibility of the political decision, be the means of achieving*

[1] This difference is often completely ignored. See, for example, Professor Bauer's rejection of "compulsory saving" through taxation on the ground that (to quote Professor Bauer's slightly provocative understatement): "I attach significance, meaning, and value to individual acts of choice and valuation, including individual time preference between the present and the future" (*loc. cit.*). See also Professor Eckstein's arguments for using the individual's "pure" time preference as revealed in economic operations (*loc. cit.*).

[2] To put it in another way, each member of the present generation may want to raise the rate of saving of everybody, but may not wish to raise that of himself *in isolation*. A person is likely to be more "biased" in favour of his *own* consumption *vis-à-vis* that of the future generations, than he would be in favour of the consumption of the present generation *as a whole*, which also contains people other than himself, *vis-à-vis* the consumption of future generations.

this to a sufficient extent to over-compensate the loss that he would incur from his own act of sacrifice. This paradox could be put in terms of " external economy," but this terminology is unhappy, because the basic framework of the concept of " external economy " is that of the maximisation of personal utility (with possibilities of *personal gain* from the action of others). This, however, is a case of a person's readiness to sacrifice his own pleasures for future generations, provided others are ready to do the same. The " isolation paradox " arises from not distinguishing between the assumption appropriate to a general political decision as opposed to one of individual action in isolation. It seems to be an extremely simple distinction, yet it has been responsible for considerable confusion of thought about the nature of democratic decisions on economic matters.

Problems of Political Mechanism

It is one thing to recognise that the question that is being discussed is essentially political in nature and cannot be resolved by aggregating isolated decisions of individuals, it is another to decide on the type of political mechanism that will be most suited to the policy decision. The conflicts and paradoxes involved in voting are well known.[1] Without a certain degree of " similarity " of the social values of the people, the voting procedure may not give us unambiguous results. But this is a problem that is present in all types of political decisions, and this does not prevent us from relying on some political mechanism or other for resolving all these questions. It is most important that the question should be debated in terms such that people know clearly what is the precise issue involved and the rest has to be left to the usual channels of political decision-taking, *e.g.*, elections, public criticisms and, if necessary, referendum. The difficulty is no more (and, of course, no less) than that faced in other problems of political decision.

We must, however, pay some attention to the different ways of presenting the issues involved in the choice of an " optimum " rate of saving. We have earlier expressed our doubts about the usefulness of putting the question in terms of utility functions, for it is not easy to appreciate what one is doing when one is voting for a certain specific utility function. On the other hand, the choice cannot be put as a once-for-all choice between a point-sacrifice of consumption and a consequent point-addition to consumption in the future. An investment creates productive capacity for a number of years, and the present sacrifice of consumption leads to a *flow* of additional consumption in the future. If production capacities are not specific and the current input requirements of corresponding units of consumer goods and investment goods are equal we can easily express both the investment and the consequent flow of output in terms of consumer goods. If the amortisation necessary

[1] See Kenneth J. Arrow, *Social Choice and Individual Values*, *op. cit.*

for the maintenance of the capacity is subtracted from the annual flow of output we get something like a perpetual annuity that is one of the ways of looking at the problem.[1] If we find that the annuity as a proportion of the amount of consumer goods sacrificed by a marginal unit of investment is, say, 10%, we can then put the question before the people whether this is an acceptable rate of net return. This way of putting the problem has, however, two defects. First, in certain societies a question like this may not make much sense to the people who have to judge the acceptability of the rate of return. Familiarity with market rates of interest may not necessarily make the problem easier; in fact, in some cases it may make the appreciation of the true significance of the rate of return more difficult. The context in which interest rates enter the life of the people is often so different from the context in which this question is raised that the possibility of deception by a false sense of comparability might add to the difficulty. Secondly, the gestation lag between the investment and the beginning of the fruits of the project will add to the complication of the choice.

An alternative way of putting the same question is to calculate the number of years in which the lost consumption can be recovered from the output due to the investment. If we do not wish to commit ourselves about the rates of saving in the future we may try to calculate the shortest possible period of recovery (subject to the maintenance of the capacity). If, for example, the rate of *net* return is 10% and the gestation lag is five years, we may put the question before the public whether they would be ready to give up a unit of present consumption that *can* be recovered fully (if so desired) in fifteen years, and from then onwards, once every ten years.[2] This way of presenting the question has two great advantages. In the first instance, it makes an aspect of the choice much clearer, and thus contributes to the understanding of those who will debate on the issue. Secondly, in so far as one of the most important reasons for social time preference is the degree of uncertainty associated with the future, the limitation of the time horizon is a useful way of introducing this factor, for the longer period of return, the more hazardous things may become.[3] We shall not, here, go farther into the question of the right way of presenting the problem. In certain political debates, though not in all, this may indeed be quite a useful method of putting the question.

It may, however, be difficult to avoid committing ourselves about future rates of investment, because when we build new capacity with this year's investment we may have to know the specific composition of the future output. If this is so, the idea of *possible* (but not necessarily actual) periods

[1] The value of the annuity may change with the conditions of labour supply and of technological change.

[2] Possibilities of technological advance and changes in labour supply will add to the complication of the question.

[3] In Chapter VII of my *Choice of Techniques: An Aspect of the Theory of Planned Economic Development* (Oxford, 1960) I discuss the different types of uncertainty involved in the choice.

of recovery of lost consumption will not be a very useful concept. On the other hand, the assumption of an unchanging saving rate is not fair to the future generations, for they may wish to alter the saving rate. While not denying the truth of this proposition, it must be pointed out that the economic world is such that (thanks to specificities and time lags) we *do* have to take decisions for future generations. We need not, of course, make the assumption (as Professor Tinbergen did) that we should choose the *same* rate of saving in the future as now, but the saving rates for a considerably long period may have to be decided now. The present-day counterpart of this proposition is that the rate of real saving that is possible now may similarly have been determined in the past, and given the specificity of the capacities, there is not much that we can do about it at the moment. This brings us to our final question: how much freedom do we, in fact, have in the choice of the " optimum " rate of saving. This is discussed in the next section.

III. Limits of Variation of the Saving Rate

For a satisfactory solution of the problem of the " optimum " rate of saving, we must have an idea of the width of the range from which the choice is to be made. We cannot assume that any rate of saving from zero per cent to a hundred per cent can be chosen, and a big part of our exercise in this problem will consist of finding the relevant range from which the " optimum " is to be selected. The upper and the lower limits will depend on both social and technical factors, and we shall first discuss the former.

The level of consumption in any particular community cannot be suddenly pushed below a certain limit determined by the history of the community. One of the advantages that a post-revolutionary government has compared with the pre-revolutionary government in the same society is a certain relaxation of this barrier. By eliminating a certain high-consumption class from the top of the social hierarchy, which previously enjoyed a big part of the cake, a revolution might lead to a raising of the upper social limit of saving given by the difference between productive capacity and the socially accepted limit of minimum consumption. This, of course, involves the assumption that the disappearance of the previous upper class is not accompanied by: (*a*) an even greater reduction of productive capacity arising from dislocation, and/or (*b*) the creation of a new high-consumption upper class replacing the earlier set.

In a society where the proportion of luxury consumption is small the lower limit of consumption approximates to the real wages bill of the community, *plus* the necessary doles for those who are unemployed, or are otherwise dependent on the society. We shall not go into the question of what constitutes the " minimum " wages, or doles; it is sufficient, for our purpose here, to recognise that there *is* a sociologically determined lower limit of consumption, and a corresponding upper limit of the saving rate.

Another possible upper limit may arise from the effect on the efficiency of production when the saving rate is raised too much. One of the merits of Mr. Horvat's criterion discussed earlier was his emphasis on this limit. While we need not follow him in considering this upper limit to be the "optimum," it is a limit that tends to reduce the width of the range of our choice. Beyond a point, an expansion of investment may actually lead to a negative return at the margin, and there is obviously no point in pushing the rate of investment beyond this point.[1] If this limit applies before we reach the limit given by the socially accepted level of minimum consumption this will naturally be the *effective* limit.

The lower limit of saving may arise from a number of different factors. One limit may be given by the investment necessary for the maintenance of the existing capacity of production. Another limit may be provided by the growth of population. Like the minimum consumption of the present period given by the social ideas and the size of the present population, there may be a minimum growth rate of consumption given by the growth of population. It is true, of course, that in certain societies this type of values (viz., objecting to a decline in the standard of living) may not yet be fully developed, and one can quote examples of this happening in some countries in the past. It is, however, extremely unlikely that a community that is at all interested in the question of the "optimum" rate of saving will tolerate an actual decline in the standard of living. So for the type of society that is relevant for our analysis, this is likely to provide a lower limit to the rate of capital accumulation. It is of interest to note that in some countries, which are, on the one hand, very poor with a high rate of growth of population, and which are at the same time very keen on planned growth, *i.e.*, interested in questions like that of the "optimum" rate of saving, the upper and the lower limits may leave only a very small range in the short run from which the rate of saving can be chosen. Many countries in Asia provide examples of this. Maintenance of the standard of living might require the investment of nearly the whole of the possible surplus over minimum consumption. As the economy develops, the range of choice expands, and the problem of selecting the "optimum" rate grows in significance.[2] The general point that, given other things, a higher rate of growth of population will tend to raise the "optimum" rate of saving remains, however, true.[3]

[1] One can, however, think of a very special situation when the society might want to store some consumer goods for the future even at the cost of some loss over time. This is a case of investment in inventories with a negative rate of return.

[2] Thanks to a desire to catch up with the richer countries, people in an underdeveloped economy may, however, be ready to make proportionately higher sacrifices than people in richer countries. The existence of surplus labour may also allow an expansion of saving without a curtailment of consumption. See Ragnar Nurkse, *Problems of Capital Formation in Underdeveloped Countries* (Oxford, 1953).

[3] In so far as an expansion of consumption increases the rate of growth of population, the problem is more complex. The question can, then, be studied only in terms of a set of simultaneous equations.

Short-run Limits

Even in societies where possibilities of variation are not restricted by poverty and population growth, the short-run scope of variation may be very little for two different reasons. First, at any point of time an actual curtailment of the standard of living is unlikely to be accepted, unless (*a*) there is some kind of emergency, *e.g.*, a war, or unless (*b*) the political nature of the society changes radically, bringing about a shift of the balance of different social classes. But leaving out these political and social upheavals, it is reasonable to assume that an actual reduction of the standard of living enjoyed by the different groups of the community will not be easily acceptable. This limits the possibility of raising the saving rate from whatever it is in the short run without a social revolution. The proportion of saving of the *incremental* income, however, is a short-run variable.

A no less important short-run limit to the variation of the saving rate arises from the technical specificity of productive capacity. The possibility of real saving is restricted by the possibility of real investment, and it is not possible to switch immediately from the production of consumer goods to the production of investment goods.[1] In the very short run, therefore, the real saving rate cannot be *raised* beyond a fairly close limit, and it is also pointless to *reduce* it beyond a limit in the very short run. The determination of the " optimum " rate of saving must, therefore, be viewed as a long-term problem. The relevant question is not what should we make the rate of investment this year, but what should we make it after the lapse of several years. This raises some rather interesting problems of political evaluation. The values of the present-day society have to be used to allocate consumption between two different periods in the future. This is, of course, by no means a unique problem arising only with the determination of the " optimum " rate of saving; in fact, most of the important political and economic decisions do involve such problems. This aspect of the question is, however, worth stressing, since it has not received much attention in the discussions on the " optimum " rate of saving.[2]

Once the specificity of productive capacity is recognised to have an important bearing on the question, the problem of the *allocation* of investment between different sectors becomes the present-day equivalent of choosing future rates of saving. If, for example, we assume that investment goods are of two types, viz., those that make consumer goods and those that produce investment goods, the present-day allocation of productive *capital* between these two sectors comes to very much the same thing as the determination of the future division of national output between consumption and investment.

[1] Investment in " working capital " may, however, be possible, to a certain extent, with a surplus of consumer goods. For example, in some poor economies a surplus of food and cloth (and a few primitive tools) may be sufficient for investment in building dams, or roads, with very labour-using techniques. The possibility of this type of investment is, however, limited.

[2] See, however, Maurice Dobb, *Essay on Economic Growth*, *op. cit.*, Chapter V.

The allocation of *investment* between the two becomes the means of influencing the rates of investment in the future.[1]

If one assumes further specificity, so that investment goods to make investment goods to make consumer goods are different from investment goods to make investment goods to make investment goods, the decision has to be taken one farther step backwards, and so on. The process need not, however, be continued indefinitely, for two distinct reasons. First of all, the various sectors of the economy are not related to each other in one long chain of " earlier " to " later " sectors, and there is a considerable element of circularity of technical relationships. Further, some types of investment goods can make other investment goods of their own kind. For example, machine tools (like cows) can reproduce themselves, and a point comes when one can find a sector which produces investment goods not merely for other sectors but also for itself. Secondly, the possibility of international trade increases the degree of freedom that can be achieved in the allocation of investment. To some extent, this also increases the scope of varying the total rate of investment in the very short run. As an example, one may refer to the purchase of producer goods by the Soviet Union during her First Five Year Plan, by exporting grains, and " a number of goods which were in short supply in the home market (tobacco and matches, sweetmeats, linen and dairy produce) at the expense of home consumption." [2]

The scope of *short-run* variation of the investment rate through international trade is, however, restricted much by the possible adverse effects on terms of trade, so that it still remains true that the debate on the " optimum " rate of savings must be a debate mainly of long-run policy variations. One can classify the questions involved in the determination of the " optimum " saving into at least three groups. First of all, it is a problem of allocation of consumption for the present generation between near and distant future. Secondly, it is a question of allocating consumption between the present generation and the future generations. And finally, it is also a problem of allocating consumption *between* different generations in the future.[3] The longer the time period necessary for the execution of saving decisions given by the extent of specificities and gestation lags, the more important becomes the last question compared with the earlier two, and the second question compared with the first. The nature of the political questions asked will, thus, depend on these economic and technical factors. The formulation of the questions may, therefore, turn out to be no less difficult than the determination of the political methods of answering them.

[1] This will require a corresponding change in the nature of the political question to be asked, which can no longer be put in the form used in Section II.

[2] Maurice Dobb, *Soviet Economic Development since 1917* (New York, 1948), p. 238.

[3] As we have suggested earlier, the level of consumption might not be the only determinant of " welfare," and the allocation of capital goods between different generations may also have to be considered.

IV. Summary and Conclusions

In the first section we discussed some of the traditional methods of solving the problem of intertemporal allocation. We found the use of utility functions a totally unsatisfactory method of introducing the political element into the choice. We also discussed the case for using the "pure" time discount of individuals and discovered that it could not be justified even on grounds of "consumers' sovereignty." We examined a number of other solutions published in this journal and elsewhere, and found them to be various alternative methods of eliminating the problem altogether by taking very partisan views of the question.

In the second section we tried to compare the solution of the problem that will emerge from individual decisions in a free market with the one that will emerge from a political decision in which the whole population took part. In addition to differences arising from the necessarily incomplete knowledge of the individuals, the existence of "external economies," and the considerations connected with Rousseau's distinction between the "general will" and the "will of all," we found a further, and in our opinion important, difference arising from the totally different nature of the two questions. The alternatives that are open to the people are completely different in the two cases, and the paths chosen may, therefore, be very different from one another. It is, for example, perfectly possible that in a society where no one saves anything, everyone might nevertheless be ready to vote for a political proposal requiring each member of the society to save, say, 20% of his income for the sake of future generations. This apparent paradox, which arises due to a case of interdependence though not of "external economy" in the usual sense, is readily understandable if it is recognised that while a person might apply a "pure" discount to the consumption of the people of the future, he might apply a similar, if less severe, discount to the consumption of *others* in the *present* generation. We also discussed some alternative methods of posing the political question for popular debates.

In the final section the limits imposed on the problem by political and technological factors were discussed, explaining that the range of choice is quite narrow in the short run, and the real choice might concern the saving rates of fairly distant future. The greater the strength of these factors, the more will the problem be one of allocation of consumption between *different* generations in the *future*, rather than one of allocation between the present generation, on the one hand, and the future generations, on the other. To the extent that this is true, the present generation will have to play a part in this problem that is totally different from the one usually attributed to it.

Amartya Kumar Sen

Trinity College,
Cambridge.

An Appendix on Harrod's Second Essay

In his "Second Essay in Dynamic Theory," [1] Sir Roy Harrod discusses a number of things that are relevant to our problem. Sir Roy resolves the question of the optimum rate of saving in terms of the concept of the "natural" rate of growth, which he first put forward in his well-known "An Essay in Dynamic Theory." [2] It is the rate given by the growth of population and that of technology, being, in the main, exogenously determined. This natural rate is taken by Harrod to be also the "welfare optimum" rate.

At first glance this identification might appear to be a little puzzling. How can a growth rate given by a set of purely positive factors be automatically regarded as the "welfare optimum" rate? In his article a utility function is employed, but its purpose is mainly to find out what interest rate, as an expression of intertemporal preference, is consistent with the natural rate of growth.[3] Even the conflicting claims of an increase in the interest rate and the creation of a budget surplus as alternative counter-inflationary policies are discussed in terms of establishing the "natural rate of interest" derived from the natural rate of growth.[4]

In Harrod's system the natural rate of growth gives the only rate of growth consistent, in the long run, with maintaining full employment. A lower rate of growth cannot be chosen if growing unemployment is unacceptable. A higher rate of growth cannot be sustained, in the long run, because of the shortage of labour. This is certainly a very neat and ingenious method of solving this intertemporal problem using value judgments that are sufficiently widespread (at least, in some societies) to be taken for granted.

The reason why I find this solution unacceptable is my inability to accept technological progress as "an almost entirely independent variable." [5] It might be useful to contrast this with the empirical assumptions made by Professor Tinbergen in the article we discussed earlier.[6] There it was assumed that within the limit set by the given capital–output ratio, one can have any rate of growth by varying the rate of saving. A rise of $x\%$ in the saving rate is assumed to lead to a rise in $x\%$ in the growth rate also, without the capital–output ratio moving against one due to the limitation of labour supply or of technological improvement. This, as I tried to suggest elsewhere,[7] must assume that "as soon as we try to speed up the full capacity of growth of output by choosing a higher rate of saving, progress of technological knowledge will also be speeded up to the required extent." This assumes a very high dependence of technological progress on the experiences acquired in making new investments, and on the active pursuit of new techniques associated with a high rate of capital accumulation. Sir Roy Harrod makes the exactly opposite assumption, and the growth rates of technology and population, in his model, *cannot* be influenced by the rate of accumulation of capital. While I find the Tinbergen assumption too flexible, Harrod's assumption strikes me as being too rigid. This is, however, an empirical question, and can be resolved only by factual research, which has been, so far, sadly inadequate.

[1] Economic Journal, June 1960.

[2] Economic Journal, March 1939.

[3] The natural rate of growth, in Harrod's system, is "an almost entirely independent variable, but possibly depending to a slight degree upon the rate of interest" (paragraph 23).

[4] *Op. cit.*, paragraphs 42–3.

[5] Harrod adds that the "natural" rate of growth depends "to a slight degree upon the rate of interest." It should be noted that it is not necessary for Harrod's equations to assume a dependence of only a slight degree, and this is, in fact, an additional empirical assumption. However, as far as other variables are concerned, they have no direct influence on the "natural" rate of growth, in Harrod's system.

[6] "The Optimum Rate of Saving," Economic Journal, December 1956.

[7] "A Note on Tinbergen on the Optimum Rate of Saving," Economic Journal, December 1957, pp. 745–6.

ORDERLY MARKETING OR COMPETITION? (THE BLANKET MANUFACTURERS' AGREEMENT)

INTENSE competition gives rise to short-term market risks, and many industries, including the blanket industry, have made agreements whose prime purpose and result is to reduce these risks. Inevitably the agreements reduce competition, and the question which arises is whether there are advantages to the public to be gained from orderly marketing, or whether the reduction in competition has disadvantages which more than offset the advantages.

It is the business of entrepreneurs to make decisions about prices, production and output. They have to change their products in response to changes in demand, they have to adjust their prices in response to competition and they have to adapt their production methods to changes in techniques. It is adaptation of this type which gives them profits and makes the industry efficient. No agreement which inhibits these changes is likely to be in the public interest. It has generally been thought that the maximum of competition leads to maximum efficiency, since the inefficient firms are penalised and the efficient firms prosper. It is the object of this paper to study this proposition in the light of the fact that really intense short-period competition can result in a situation in which the success of firms depends not only on long-period efficiency but upon day-to-day decisions which involve great risk, but which have no effect on the long-period efficiency of the firm.

Marketing skills are usefully divided into two categories. First, there is the skill in the day-to-day negotiation and bargaining; that is, skill in knowing when to cut prices, when to put in an abnormally low bid, when to give concessions to customers, when to cancel contracts and accept losses and when to offer special service without extra charge. Quite different skills are required from longer-term strategy. This second category of skill includes choice of product range, choice of price structure, choice of method of presentation, choice of selling outlet and advertising methods, and the decisions as to which market to concentrate on. The most important skills in this second category are probably concerned with the choice of product range. In addition, misjudgment of the market, offering the wrong product to the wrong market or concentration on a declining market are major forms of inefficiency which lead to the decline of firms.

The relative importance of these two categories of skill in determining the profitability of the firm depends upon the marketing conditions. When competition is intense the day-to-day decisions may be of prime importance, but when industry is able to concentrate on long-term strategy it will be the production and output decisions which are of greatest importance.

Skilled short-term risk taking gives few advantages to the public. It will result in higher profits, but not necessarily in any fundamental adjustment. There is no guarantee that firms which are skilled in short-term risk taking will be those who are well adjusted to the basic situation. Further, the successful decisions may be taken by one firm and then another, and they will result in windfall gains which do not give an incentive to make fundamental adjustments.

In some industries day-to-day risks are eliminated by the creation of market imperfections which reduce the intensity of short-period competition. These imperfections increase the profitability of firms without necessarily being in the public interest; they may in fact inhibit adjustment. One common type of imperfection is the creation of vertical organisations such that the manufacturer is selling an advertised and branded product direct to a more imperfect final market; another is amalgamation. Risks may also be spread by diversification. In other industries there is little short-term competition because there is tacit understanding or a kinked demand curve. In these industries each firm knows that it will not pay him to cut prices, as others will follow immediately. There remains, however, a wide range of industries in which there are many firms, frequent changes in demand and intense competition, and it is industries of this type which have endeavoured to make life easier by agreement. The object is to secure orderly marketing rather than the raising of the general price level and the general level of profits.

The case against the blanket manufacturers' agreement (heard by the Restrictive Practices Court in February 1959 (Law Reports, Volume I—Restrictive Practices, pp. 208–61)) is of some interest, as the agreement was a comparatively straightforward example of one which was primarily designed to promote orderly marketing. Under the agreement the lowest minimum price at which any firm was prepared to sell a "standard" blanket became the minimum price for the industry. The standard blanket was only 15% of trade in blankets, and the association had only 75% of the market. It is thus clear that this part of the Agreement had little real force. The other clauses of the Agreement concerned the prices of "extras," such as stripes, transparent packaging and transport charges on small deliveries. Standard discounts were agreed, and firms declared that they would neither modify nor cancel contracts without the agreement of the other members.

This rather slight agreement was declared to be against the public interest because the Association failed to show that it gave specific and substantial benefits to the public. It was argued that although the agreement had little effect, such effects as it had were to reduce competition. The Restrictive Practices Court took the view that contracts should be the result of free bargaining by individual buyers and sellers. This view may be contrasted with the line taken by the Working Parties. The Wool Working Party Report of 1947 said, "We have considered the practice of the industry in

relation to terms of sale and over-measure.[1] We are in agreement that the practice of over-measure is one which should be abolished and that it is most desirable that the terms of sale should be standardised." A similar view was taken by the Balfour Committee. Both argued that changes in trading method which increase efficiency and reduce unnecessary work are desirable. This view is in conflict with the argument that the maximum of competition leads to the best result because this argument takes no account either of the cost of "higgling in the market," or the cost of risk bearing, nor does it take account of the effect on "efficiency" of placing a higher premium on successful short-term bargaining and on risk bearing, rather than on adjustment to new conditions. The Blanket Association's defence was much weakened by its failure to stress the costs of risks and certainty. It is worth examining the effects of the Blanket Agreement on decisions involving risk; for this case is typical of many.

Arguments which suggest that the agreement was primarily designed to give permanent higher prices and that the clauses relating to terms were simply a buttress, a necessary buttress to the higher prices, are misleading. The whole scheme was designed for orderly marketing and risk reduction. It is from that point of view that I propose to discuss it.

Before considering the scheme in detail it seems useful to give an outline of the structure of the industry.

The Structure of the Industry

The blanket industry consists of three broad types of firm: first, there are six or seven large blanket specialists who supply some 50% of the total market; this figure underestimates their importance, as they supply a very much larger proportion of the standard types of blanket. Secondly, there are about twelve firms who make substantial quantities of blankets; some of these are medium-sized specialist firms, others are larger non-specialist firms in the general woollen trade. Finally, there are some fifty firms who make blankets in small quantities; these are either very small specialists or are primarily engaged in other sections of the woollen trade.

Thus, although there are a large number of firms with some interest in the blanket industry, the trade is oligopolistic in that there are six or seven major firms which set the pace in the industry, and there are not more than about eighteen of any real significance. The importance of the other firms is that they could expand, and sometimes do expand. Entry into the industry is quite free.

The prosperity of blanket manufacturers depends primarily on skilful wool buying and upon successful marketing. Productive efficiency is relatively unimportant. The importance of skilled wool buying is obvious, since 60–70% of the total cost of a wool blanket is made up of the cost of the

[1] Over-measure is giving more than the amount stated in the contract—*e.g.*, the baker's dozen and the 38-in. yard.

raw wool. As the price of wool does not vary by less than about 10%, even in the stable years, the importance of skilful buying is clear. This point has sometimes tended to overshadow the point that marketing is equally important. In the trade it is thought that successful marketing, that is, "selling to best advantage," is quite as important as successful wool buying, and that the differences between marketing skills displayed by different firms are greater than the differences between their skill in wool buying. Although from time to time huge losses are made on raw wool, and from time to time large profits, it is nevertheless a series of good marketing decisions which determines continued prosperity of firms. This is even more true since increased use of rayon staple fibre, whose price remains stable, has reduced the relative importance of wool buying.

Marketing in the Blanket Trade

The outlets for blankets are diverse, but three broad types of market can be distinguished.

First, there is the market for standard type blankets bought in bulk. These are bought mainly by the Government, local authorities and other large institutions. In this market contracts are awarded on the basis of tendered prices; the quality is laid down, and the buyers ensure that it is maintained. Price competition is simple and intense, and there is no debate about the terms of sale. The price applies to specific orders and any change in the terms of sale would be reflected in the price.

The second market is with the large customer, such as mail order businesses, the large wholesalers and the chain stores. Substantial orders are available, and as many of the larger manufacturers compete strongly, the buyer is in a very strong position. It is in this market that the hardest and most difficult bargaining takes place. Each order is important, and yet any concessions given may also have to be given to other customers, since the blankets bought by the large buyers will often be in competition with those bought by small buyers in the final market. A good deal depends upon the identity of the customer to whom the original concession was granted.

Finally, there is the direct trade between the manufacturer and the retailer. Most of the large firms, especially those who make blankets only, do a fairly high proportion of direct selling. Direct selling is somewhat expensive, but it reduces dependence on particular large orders, and so reduces market risks.

Direct selling involves selling to the buyer of small quantities, and he is generally very different from the buyer of large quantities. Whereas the latter is a specialist, the buyer of small quantities is typically buying for a small wholesale business or for the household furnishing department of a substantial store. He is concerned to buy at reasonable prices products which will sell and which he knows to be competitive with the products sold by his competitors. He cannot possibly devote minute attention to all

details. He is probably dealing with several thousand different products, and over a hundred different salesmen. He is glad to know that there are standard terms, since he can then cope with more business; if they do not exist he must check each detail, as he must avoid being undercut by his competitors. The more uncertain the conditions of sale and the more frequent the price changes, the less business he can cope with. Trade with the small buyer has two further aspects. First, he can be persuaded to stock a particular brand or a particular range. He does not normally go out of his way to find out what is available, and the manufacturer can very often persuade him to stock something which the wholesaler would not bother to press him to take. As the major seller of branded products depends for success upon numerous outlets, he can normally gain by direct selling which enables him to press his particular product more strongly than the wholesaler would do. Another approach open to the manufacturer is to make the main shop in a district the sole supplier of a well-advertised high-quality product, so securing a good outlet and maintaining the reputation of the product. This selling method was used rather more frequently prior to the growth of chain stores, which are now so valuable an outlet that few manufacturers can ignore them. As chain-store buying is done centrally, the manufacturer cannot always tell in which towns his products will be sold, and unless he refrains from selling to the chain stores cannot effectively promise that a particular local shop shall be the sole outlet in a town.

Direct selling keeps the manufacturer in much closer contact with the market. He is made aware of the changes in demand and changes in fashion and of the attractions of his competitor's product. In general, market-conscious manufacturers are the most successful, and it is the direct sellers who are the most market conscious. Instead of earning a reputation as suppliers of a particular product, they adjust quickly and are more likely to produce new ideas. When they have new ideas they back them strongly and make great efforts to get them accepted by the retailers. The wholesaler has less interest in the promotion of particular specialities. He either waits for the promotional efforts of others to effect his demand or he is inclined to want a sole agency.

It is important to recognise that the blanket trade is in some degree a fashion trade. It is not that the consumer is particularly interested in slight differences but that he switches his demand very easily. He buys the colour and type of blanket which appeals to him. Further, the fact that the ultimate consumer is extremely ill-informed, and a very unskilled buyer, has great effect on the nature of the market. It is extremely difficult for the average housewife to judge the quality of a blanket, and it is quite impossible for her to judge whether differences in quality justify differences in price. How many housewives will calculate the cost per pound of different blankets? They do not even calculate the cost per square foot. To compare the merits of a blanket 100 in. × 108 in. costing £6 16*s*. 6*d*. with the merits of a blanket

96 in. × 112 in. costing £7 17*s.* 6*d.* is difficult. No housewife shops with a slide rule. To decide whether merino is worthwhile and to compare merino blankets of various qualities with crossbred blankets of various qualities requires special knowledge and skill. Thus, small variations in quality and price are of little or no significance in determining what the customer buys. The margins obtained by retailers on blankets of different sizes vary considerably, as do the profits made by the manufacturers on the different blankets they produce. No very fine price adjustment is found either at the manufacturing or the retailing level, where the situation is comparable with the situation in grocery retailing. Manufacturers' fortunes turn in part upon their decisions as to the lines upon which they will concentrate and on the structure of their prices. Many shops stock four or five types of blankets which have price differences of about 10*s.* They often have a rather clear idea as to which are the best value.

It is because the consumer is an unskilled buyer that intense short-period price competition between manufacturers does not always lead to price reductions which are passed on to the consumer. The extent to which they are passed on varies considerably, both between shops and between types of blankets; some prices are very sluggish. Shops retain their customers by retaining their confidence, that is, confidence that they will obtain as good value from that shop as any other. Examination of the blankets available in different shops suggests that some businesses with a high reputation for honesty and good quality lose customers by selling at rather high prices. Independent shops are likely to have a smaller share of the trade unless manufacturers and wholesalers continually forgo immediate profits in order to ensure that the goods sold by their shops remain competitive. Competition in the blanket industry is very imperfect, each firm is faced with a kinked demand curve and works in conditions of precarious stability.

The competition has never been such that prices fluctuate with demand; they can seldom be raised above "normal" levels, since most firms have some spare capacity and could increase their output fairly easily. Firms maintain scope for expansion, since each wishes to be able to take extra trade when it can be obtained without undue cost. When, as can happen, a period of intense competition does develop it is not perfect competition, but is characterised by "dog fights" in particular sections of the market. In the blanket industry "normal prices" are sufficiently well maintained to make adjustment to an intensely competitive situation unnecessary. Yet, even if one firm begins chiselling at prices or giving particular concessions, others do not always follow; they will do so if they see a real threat to their position.

In the absence of an agreement day to day price policy is extremely difficult. Firms must decide whether or not to cut prices, and their decision is not "What is the lowest price at which it will at this moment pay to take this order?" their decision is rather "If I take the order at less than full cost, will

all prices fall to this level? and, will, or will it not, be possible to raise them again?" This problem is particularly difficult when the customer complains that he has already received a lower offer. The manufacturer does not know whether or not this is true, it may be pure bluff, or it may be based on the rumour that there is a firm offering a very low price. Without some knowledge of the behaviour of his competitors the seller is faced with a decision which involves considerable risk, and errors may be very expensive. Failure to cut prices may result in a loss of an order, yet cutting prices may involve sacrifice of profits both on the order in question and on many future orders. Further, if a firm cuts the price which he charges to one customer he runs very great risk that another customer will discover that his competitor has obtained a better bargain. This will cause very serious loss of goodwill.

The Blanket Manufacturers' Association Agreements

The object of the Blanket Manufacturers' Agreements was to limit short-period competition and to promote orderly marketing, reduce commercial risks and to limit what were described as unnecessary losses, *i.e.*, losses which did not promote adjustment to long-period situations. In so far as the Agreement tended to reduce losses, it did, of course, maintain profits.

The Minimum Price Clause of the Agreements

The manufacturers agreed upon a minimum price for a particular all-wool white blanket. The particular blanket constituted only 15% of sales by 1959, but had previously been very much more important. The minimum price was the lowest cost submitted by any manufacturer. The actual procedure was for each manufacturer to send to the Association accountant a statement of the cost of the blend for his lowest-quality all-wool crossbred blanket. This was generally based upon the market prices of wool ruling at the time, although manufacturers could have referred to their stock positions at the time if they wished. To this cost of material was added the cost of conversion based on previous investigation and a standard allowance for profit. The lowest price of a specified blanket so calculated automatically became the minimum price. New minimum prices were fixed whenever any manufacturer wished a change to be made and/or every three months.

It is very difficult to judge the importance of this part of the agreement. First, very little business was done at prices as low as the minimum price, secondly, it is related to so small a proportion of sales that much price cutting could take place without any infringement of the Agreement. The only certain effect was that it prevented very low prices being charged for the particular specified blanket. This assurance is of some importance, since in periods of sharp recession it was quite usual for rumours to become widespread, and firms were uncertain whether or not it was true that others were offering very low prices.

The price agreement as it stood in 1959 was so weak that it seems very

probable that its chief importance lay in the fact that manufacturers met, discussed prices and, in some spirit of co-operation, refrained from temporary price cutting. Further, the very business of fixing a "minimum" price tended to give rise to a tacit agreement to the effect that prices should bear a reasonable relationship with each other, and with the minimum price. Three particular features of price behaviour are of importance in this connection. First, whether having been announced, prices are maintained, secondly, whether the same price is charged to all customers, and thirdly, whether price changes are timed in such a way that the manufacturers do not have to bear the losses due to reductions in the price of wool while giving away the profits which might have been obtained from increases.

It is certain that the Agreement promoted solidarity and reduced all forms of price competition—to what extent is less certain. The important point is that the reduction in price competition, in so far as it took place, was a reduction in short-period price changes and short-period competition, and it is unlikely that the Agreement had any substantial effect on the normal levels of prices. Prices were steadier, and only higher in so far as they fell to lower levels less often. There is no justification for the belief that prices were actually maintained above long-period average levels.

The very mildness of the price agreement reflects the long-term competitive tension within the industry. The industry could not make a rigid and inflexible agreement. While there are no doubt some firms who wish to eliminate long-term competition, there are others who expect to gain from it and would not subscribe to such an agreement.

In very many industries price agreements are accompanied by agreements upon other aspects of the trade contract, and the blanket industry is no exception. The relationship between price agreement and the other clauses is more complicated than it appears. It is normally argued that the agreements about "terms" are the necessary corollary of the price agreements. Certainly each clause in an agreement gains strength from the existence of other clauses, since if one form of competition is restricted the competition may be concentrated on those aspects which are unrestricted. This is the usual approach to the problem, and it certainly applies to numerous industries. In others, as in the blanket industry, there is a rather different situation. Here the agreement reduces competition of the type which leads firms to give particular customers particular concessions. The Counsel for the Association did not argue that the clauses of the Agreement stood or fell together, and several witnesses suggested that the clauses about terms were more important than the clause about minimum prices. Few of the clauses of the Agreement were important when considered alone, but taken together they represent an agreement to promote orderly marketing. The long-term competition remained, but discrimination between customers was reduced and the real longer-period competition was more clearly seen by competitors and buyers. By reducing the complications of the contract,

knowledge about the relative merits of different suppliers is made more easily obtainable and more widespread, and market imperfections are thus reduced. This has the effect of increasing the importance of the kink in the demand curve and so promotes price stability. Where there is considerable price discrimination it becomes important for buyers to shop around. The costs of "going shopping" were recognised in the judgment of Friday, July 15 in *re Black Bolt and Nut Association Agreement.* (This Agreement was held valid on the grounds that the avoidance of "shopping" was a specific and substantial benefit.) Trading becomes extremely tedious, time consuming and wasteful when the number of variables to be settled is large. The large buyer will spend time on comparing all details, but the small buyer who is trading in many other products is unlikely to do this; it is not worth his while to waste time shopping around.

In the next section the clauses of the Agreement are examined in relation to their effects on risk and on discrimination within the market.

The Non-price Clauses of the Agreements

The Blanket Manufacturers' Agreement contained eight clauses in addition to the one relating to the minimum price of the specified blanket.

The first was the agreement relating to minimum substance. Members agreed not to make pastel or white blankets of a specification thinner in substance than that represented by a 60 in. × 80 in. blanket weighing 2½ lb. The Court was satisfied that this clause gave specific and substantial benefits to the public,[1] and that the benefits outweighed any detriment due to the public finding lighter-weight blankets at cheaper prices either not available or not so readily available in the shops.

So far as the firms in the industry were concerned, this clause gave some protection against intense temporary competition. A manufacturer was assured that he would not suddenly find that his product had been undercut by an inferior blanket. He was less likely to have to make the difficult decision as to whether to debase his quality and retain his trade but lose his reputation or, on the other hand, simply lose his trade until the poor quality of the new light-weight blanket was discovered and became widely known. There is a self-correcting mechanism at work, but it works very slowly and involves unnecessary changes in the pattern of trade which affect the manufacturer, wholesaler and retailer and add to uncertainty and costs.

Four of the clauses of the Agreement may be considered together. They specify the various items which were to incur extra charge. First, extra charges were to be made for more than 200 sq. in. of patterns. Secondly, buyers were to pay carriage on parcels weighing under 30 lb. and to pay both carriage and packaging on parcels under 15 lb. Thirdly, transparent wrappings were to be paid for in addition to the minimum price, and the charges were standardised at 8*d.* per blanket for cot sizes and 1*s.* for other

[1] L.R.I.R.P., p. 257.

sizes. This could be charged separately or otherwise, but in the latter case a note was to be inserted on the invoice to the effect that the blanket price was inclusive of the charge for transparent wrapping. Finally, 2*d.* per pound was to be charged for ordinary stripes and 3*d.* per pound for block headings. These charges were to be added to the manufacturer's price for plain blankets.

These clauses may clearly be regarded as a buttress to the minimum price agreement, but as has been pointed out, the price agreements are extremely weak, and these clauses have some importance in themselves. They reduce concessions given to particular customers as a way of discriminating between customers. The manufacturer hopes that this type of discrimination will escape the notice of other customers, and this is often the case. Nevertheless, considerable risk is involved, because the concessions may become known to other customers, who will feel that their competitive position in the final market is being undermined. Further, there is the risk that the special concessions will become an expensive habit, and that all buyers will demand extras for which they will refuse to pay. Although the strong seller and the large seller is unlikely to give way to the demands of the buyers, the weak sellers may do so. They may give way on one or two items or on one or two particular orders, and then persuade themselves that they have not really reduced prices. Special circumstances can always be found. This may not be entirely rational, but the apparently much less rational practice of selling a 38-in. or even a 40-in. yard became quite common in the textile industry.

Two further clauses in the Agreement relate to discounts. The first specifies that discount terms be 2½% of the gross price, for payment on or before the 10th of the month immediately succeeding the consignment to the buyer. The second clause restricts the postdating of invoices. Discounts involve the manufacturer in two types of difficulty. First, they are a very common bargaining counter; while the manufacturer may be willing to fix a higher price and offer more than 2½% to induce small customers to pay quickly, he may find it difficult to refuse similar discounts in cases where this is unusual and there is no doubt about eventual payment. The other difficulty relates to enforcement. A buyer who chooses to take an extra discount by paying later than the discount date, but only paying net of discount is extremely difficult to pursue. His debt is small, he may be very unpleasant about it, and the nervous seller may hesitate to upset him. Clearly the seller has a right to the money, but alone he may be too weak to press his case. The Association can be a very great assistance in giving him support, perhaps paying his legal costs. Knowledge among buyers that such cases will be taken to court will reduce the bait of taking discounts to which they are not entitled. If the manufacturer knows that his competitors will enforce the discount terms he will be less frightened of antagonising his customers.

The last three clauses of the Agreement relate to the sharing of risk between the manufacturer and the purchaser. First, there is the agreement that all orders shall be taken at a firm price, secondly, the agreement that no contracts shall be made on a sale or return basis, and thirdly, the agreement that all firms shall enforce contracts that have been made. All three clauses are designed to limit the extent to which blanket manufacturers can get orders by incurring risk, and all three reduce the possibilities of conflict between the manufacturer and the purchaser.

With regard to the agreement that all orders should be taken at a firm price, the judgment of the court reads—

> "we appreciate that it may be difficult to trade on terms of prices relating at a date of delivery, owing to the difficulty of ascertaining that price. This is another example of a sensible attempt to have orderly conditions of sale, but it seems to us essentially a matter of negotiation between the manufacturer and wholesaler or retailer, and the public has no real interest in the matter. It certainly cannot be of any benefit to the general public that a manufacturer and the wholesaler or retailer should be precluded from negotiating a contract based on forward prices if a satisfactory means of doing so can be found."

This admirable summary of the situation indicates the source of difficulty, namely, finding a satisfactory basis on which forward prices can be determined. The difficulty lies in the fact that the manufacturer makes contracts which are vague, which he well knows to be a potential source of trouble. At the time of settlement he may be in a weak position, as he may well be negotiating a further contract. Thus, the manufacturer is taking two types of risk, first, the risk that the price of wool will drop, and secondly, the risk that the prices at the actual delivery date may be abnormally low. Risks of this type are greater for the manufacturer than for either the wholesaler or the retailer, for these are both selling in more imperfect markets and can often pass the higher costs on to the consumer.

Sale or return contracts are another device for obtaining orders by undertaking greater risk. By selling on these terms the manufacturer may be able to get his product before the public. Nevertheless, the risks are high, and contracts of this type have always been comparatively rare in the blanket industry. If not abused, sale or return contracts can constitute a satisfactory division of risk, but they are open to abuse, as was pointed out in the judgment. There is the risk that buyers will over-buy and then throw back their purchases to the manufacturer on a falling market. These losses would in the long run have to be covered by the manufacturers. Only the most optimistic or rash manufacturer of blankets would give such contracts except in the most exceptional circumstances or when compelled by competition.

Finally, there is the important clause relating to sanctity of contracts. This reads—

> " no member shall agree to the breaking of any contract by reduction of price or other procedure. Should any attempt be made to break or vary the contract, the manufacturer shall refuse to accept cancellation or variation and endeavour to obtain completion of the contract. If this should fail the member must send all correspondence to the Secretary without informing the customer that he is doing so."

It was then provided that the Secretary should write to the customer, find out the circumstances and that the manufacturer could agree to the request for cancellation or variation only if approval was given by a reference committee.

The losses due to cancellation or modification of contract can be very serious, and the manufacturer may lose in two ways. If an order is placed at a firm price but cancelled when the price of wool falls the manufacturer makes a loss on the raw material, and may be holding wool for which he has no immediate market. Secondly, he may have refused another order at a reasonable price and, although there is not in general any shortage of capacity in the blanket industry, there is during periods of speculative demand, a lengthening of order books, and orders are lost if delivery dates are too long.

Although the cancellation or modification of contracts can be serious, the individual manufacturer trying to enforce a contract on an unwilling or unscrupulous buyer is likely to incur both risk and loss. First, there is the sheer trouble of persuading, chasing and threatening, secondly, there are the costs of legal action, thirdly, there is the danger that the customer will find some small defect in the product and reject delivery, fourthly, there is the possibility that the buyer will delay and delay before sending exact specifications. All these problems are tiresome and a possible waste of time, but perhaps more serious is the fact that attempts to coerce may result in permanent loss of custom. The trade, as it has already been emphasised, is fairly regular, and competition is imperfect; thus, a customer lost may be difficult to replace. The customer may be lost both as a result of illwill and as a result of competition from other manufacturers who are prepared to modify contracts. Goodwill is important, in its absence both buyer and seller can cause added costs and risks.

This incentive to modify contracts is very great for those who supply a substantial proportion of the goods bought by a particular wholesaler. These wholesalers are in direct competition with firms who sell direct to retailers. The latter can absorb changes in the price of raw wool without modifying contracts, since they usually sell on very much shorter delivery dates. For this reason the wholesaler will press for concessions which the supplier may be willing to give in order to maintain the trade of his customer and thereby maintain his own outlet. In some cases the relationship between manufacturer and wholesaler are akin to a degree of vertical integration, and it is for this reason that the Agreement contained an escape clause whereby the manufacturer could sometimes obtain permission to modify the contract.

Concessions of this type are not as important as would first appear, since contracts can be "married together," and losses on one contract can be off-set by particularly favourable terms on the next. The important function of the Agreement regarding the sanctity of contracts is to stiffen the backs of the weaker manufacturers against unilateral pressure from their customers. When one manufacturer gives way and modifies his contracts other manufacturers become frightened, particularly during periods of uncertainty. During such periods there are many rumours concerning the concessions which other manufacturers are giving. This brings great pressure to bear on all.

The Agreement concerning sanctity of contracts is one which protects the manufacturer from competitive pressure to undertake risk. In the absence of such an agreement, manufacturers are faced with the problem as to whether they shall accept contracts which they believe to be speculative and liable to cancellation. The weak manufacturer may well be tempted to take orders, even though he knows that there is a substantial risk that they will be cancelled. There were before the War cases of people entering the trade at speculative periods, placing orders and then cancelling them if the market went against them. Since trade flows through fairly regular channels, it is difficult for a manufacturer to expand his market. During periods of poor trade a manufacturer may sell by being unduly optimistic concerning the good faith of the customer. In effect, trade is obtained by taking risk on a particular order rather than by making general price reductions. This was extremely common in the export market before the War.

The Restrictive Practices Court decided that the recommendation contained in the Agreement regarding the sanctity of contracts was not within Section 6 of the Act (this view was confirmed when the Registrar appealed against the judgment). In giving judgment, however, the Court said:

> "We may add that had we reached a contrary conclusion, we should have held that the resolution (relating to sanctity of contract) though highly beneficial to the members of the Association, was not for the benefit of the general public or to wholesalers or to retailers dealing with members of the Association, and was therefore contrary to the public interest."

This clear view depends upon thinking in terms of the immediate benefits to be obtained from particular concessions. It pays no specific heed to the effects of the increased risks incurred by the manufacturers. In a situation where contracts are commonly modified the manufacturer is frequently faced with a further series of risky decisions; he must make up his mind whether he will give way and modify the contract, he must make up his mind when to do this. His best course of action depends to a large extent upon the behaviour of his competitors. If all those in the industry were entirely rational, took a long-term view and were neither motivated by

undue optimism nor immediate desperation, it is probable that no agreement would be necessary. These conditions are, however, rarely satisfied and if some firms give concessions, other will be forced to follow suit.

Examination of the selling decisions which have to be made show that many involve very considerable risk. In unstable, highly competitive, bitter and confused conditions it is the risky selling decisions which may become the most important aspect of "efficiency," that is, the chief determinant of profits.

The restrictions of the Blanket Manufacturers' Agreement were attacked on the grounds that they reduced competition; they must be defended as being a successful attempt to promote orderly trading, that is, to reduce the higgling in the market, the discrimination between customers and the uncertainty about the behaviour of competitors. That the Agreement also has the effect of reducing the number of "bargains" obtained by buyers is clear, but in the longer run it is much less certain that it had any effect on the average prices actually paid, and indeed the Court accepted, on strong evidence, that the industry was "competitive." The Agreement was, however, declared to be invalid because it had not been shown to give to the public specific and substantial benefits. Although it is perhaps unlikely that the verdict would have been different, it is nevertheless a pity that the distinction between long-term competition with orderly marketing and intense short-term competition was not more clearly made.

Before the War much of the blanket trade was bitter and somewhat "hole in the corner." Blankets of very poor quality were sold, hard bargains were made by ruthless means and damage was done to competitors by trading methods which the more honest were loath to copy. H. S. Foxwell, writing in 1917[1] on the nature of the industrial struggle, pointed to two different standards of honour and morals in the country. He wrote:

> "'Between Gentlemen,' is to be a rule confined to private life and the professions; in trade, a critic will be told, 'Business is business.' I lay stress on this seamy side of competition, because nothing is more necessary, if competition is really to have the beneficent effects often claimed for it, than to maintain the best standards of honour against a certain tendency to drag them down. There is a kind of Gresham's Law at work in business. The best men often find their own standards degraded by the irresistible pressure of circumstance."

While this may exaggerate the state of the pre-war blanket trade, it is nevertheless true that the establishment of the Association brought the main manufacturers together, and the whole atmosphere of the trade changed. Hargreaves, who organised the wool-control arrangements in the blanket trade, put in a great deal of work in bringing the trade together and in promoting a degree of mutual confidence. As a result, the trade has been more settled, there has been less risk resulting simply from competitors' be-

[1] Economic Journal, Sept. 1917, p. 320.

haviour, more concentration on longer-run efficiency and the trade has been more honest.

It has been said that the Agreement was so ineffective that the blanket trade was before the court defending nothing. From close quarters, however, the situation looks rather different; the Agreements were the tangible evidence of the new state of affairs and the guarantee of their continuation. How far they were in fact a keystone is quite uncertain; it is very likely that they were not. Since February 1959, when the Agreement was declared invalid, the terms have, in the absence of any agreement, continued to be observed by all the ex-members and almost all the trade outside. Many retailers never realised that the Agreements existed, and even more have not realised that they have been discontinued. Manufacturers regret the verdict. They feel that while the Agreement was indeed designed to protect them, it did no harm. It promoted orderly marketing and canalised competition into the fields where it stimulated increased long-term efficiency. When trade is fairly stable it is low costs, a good product and efficient marketing which are the main factors determining profits. When successful short-term risk taking is the most important factor the competition does not necessarily promote efficiency, and competitive success is not necessarily the result of the efficient use of factors of production. Further, risk taking must be paid for, and if the structure of the industry magnifies the inherent risks in catering for the consumer, then the prices will be higher than they would otherwise have been.

There is some apprehension lest the happy state of affairs in the blanket industry may change, even though just now the conditions are satisfactory. The judgment has had little or no effect, and the Agreement may indeed prove to have been unnecessary in present conditions. It should, however, be remembered that the actions of a small number can upset the equilibrium, that it is likely that those with greatest stake in retaining orderly marketing will try to maintain it at considerable loss to themselves. Further, it is not easy when mutual confidence in orderly marketing has been lost to make the necessary agreements and to re-establish the necessary mutual confidence. Any period of intense competition in a trade in which it is normally possible to assume fairly stable prices, leaves an aftermath of great bitterness against those who undermined the rather delicate equilibrium. It is the difficulty of re-establishing orderly marketing that makes Associations of Manufacturers so very reluctant to abandon their agreements even in current situations where they know them to be unnecessary.

P. Lesley Cook

Newnham College,
Cambridge.

COST-INDUCED INFLATION AND THE QUANTITY THEORY OF MONEY

I

THE debate on the nature of inflation has been clarified by a recent article by Professor Machlup.[1] In the course of this he gives a concise statement of the arguments of those who maintain that only "demand-pull" and not "cost-push" can cause inflation. He writes:[2]

> "There is a group of outstanding economists contending that there cannot be such a thing as a cost-push inflation because, without an increase in purchasing power and demand, cost increases would lead to unemployment and depression, not to inflation.
>
> "On their own terms, these economists are correct. The rules of inductive logic say that if A and B together cause M; and if A without B cannot cause M, whereas B without A can cause M; then B, and not A, should be called the cause of M. Make A the wage-raising power of the unions and the price-raising power of the corporations; make B the credit-creating and money-creating power of the monetary system; make M the successive price increases. It should be quite clear that without the creation of new purchasing power a continuing price increase would be impossible. Hold the amount of money and bank credit constant (relative to real national product) and all that the most powerful unions and corporations can do is to price themselves out of the market."

This is the essence of the attempt to demolish the concept of cost-induced inflation. But the analysis is peculiar in at least one respect. The study of inflation during the past two decades has purported to show how an increase in any of the elements of aggregate demand may, at the ceiling output of an economy, cause a process of rising prices. Such a process is usually called demand-induced inflation. Now substitute (as A) in Machlup's argument an increase in one of the elements of aggregate demand (*e.g.*, investment) for the wage-raising power of the unions and the price-raising power of the corporations. It follows that an increase in the quantity of money but not an increase in aggregate demand (induced otherwise than by an increase in the quantity of money) can cause a continuing rise in prices. The same argument that is used to demolish cost-push as a cause of inflation must also demolish demand-pull as a cause of inflation—with one exception. Increases in demand brought about by increases in the quantity of money can cause inflation. Consequently, it would appear to follow that increases in the quantity of money should be called *the* cause of inflation. This of course is the Quantity Theory of Money.

[1] Fritz Machlup, "Another View of Cost-Push and Demand-Pull Inflation," *The Review of Economics and Statistics*, May 1960.

[2] *Ibid.*, p. 126.

If the Quantity Theory of Money disposes of cost-induced inflation it is peculiar that the attack on the latter is mounted in the form " cost-push is no cause of inflation, it takes a demand-pull to produce it." For demand-induced inflation also suffers at the hands of the Quantity Theory.

II

It will be argued that Machlup's concession that, on their own terms, the critics of cost-induced inflation are correct in their analysis is not justified. To this end, two models of processes involving rising prices will be constructed. The first will outline one kind of cost-induced price rises; the second, one example of demand-induced price rises. In both the analysis will proceed by means of the usual distinction between the *disturbing factor* (or factors) in an economic situation and the *stabilising influence* of the factors which remain constant in that situation.

Model A. An economy is here supposed in which there are bilateral monopoly positions in the labour market involving " collective bargaining " between employers and employees. The wage-bargains struck on each occasion will lie within a range determined by various influences operating on the bargaining positions of the two sides. Amongst the influences affecting employers will be the desire to avoid disruptions to production through strikes, and the possibility of passing on increased costs in higher prices without loss of sales. Employers may *believe* in the latter possibility without being able to judge certainly whether it is correct or incorrect. This may be so particularly if widespread wage increases, which will raise incomes, are thought to be likely. Alternatively, employers may judge that some fall in sales is preferable to the effects of strikes. These views may be held, moreover, even though there is no excess demand for labour. In such circumstances demands by employees for higher money wage-rates can, even in the absence of excess demand for labour, succeed. The consequent rise in money wage-rates is " supply-induced," *i.e.*, brought about by a shift in the supply function of labour.

Start with aggregate demand and supply in equilibrium at the ceiling output of the economy. Suppose a disturbance to this situation in the form of a supply-induced rise in money wage-rates. Increases in costs, money incomes and prices result.[1] This may leave aggregate demand unchanged in real terms. At higher prices and money incomes the same quantity of consumer goods may be purchased; and investors, looking to the future, may leave unchanged the volume of their additions to the capital stock.[2] Prices rise, but the equilibrium of aggregate demand and supply is maintained at the ceiling output. At no point in the process does excess aggregate

[1] Productivity changes over time are ignored, since allowance for them would lengthen the argument without altering its substance.

[2] Government and foreign trade add complications to this analysis which are ignored, since they do not affect the principles involved.

demand appear. Prices are disturbed by the shift in the supply function of labour and the adjustment of costs, incomes and prices takes place in response to that shift.

Another supply-induced rise in money wage-rates will keep the process going.

But this analysis ignores the influence of the factors in the situation which have remained constant. A number of these factors may act as stabilisers by eventually eliminating the disturbance which has initiated the rise in prices. The process is then a stable one. From the constant factors only one, the supply of money, is chosen for study here, since it is at the centre of the cost-inflation controversy. An unchanged quantity of money will probably act as a stabiliser on the process of rising prices, and sooner or later bring it to an end. Two aspects of this stabilising influence require analysis. First, what is the strength of the stabiliser as measured by the extent of the rise in prices before equilibrium is restored? Second, what is the nature of the equilibrium position reached as a result of the stabilising action?

Rising prices, with unchanged output, mean higher money expenditure, and therefore involve an expanded demand for money balances to carry out this expenditure. An unchanged quantity of money will in these circumstances: (*a*) bring about an excess demand for money balances; (*b*) raise interest rates; (*c*) lower the real value of the privately held public debt including currency (the " Pigou " effect); and (*d*) alter expectations of sales and prices. Factors (*a*) and (*b*) are but two aspects of the same thing in a perfect capital market. Interest rates there would rise to the extent necessary to eliminate the excess demand for money balances. But in imperfect capital markets, which usually obtain to-day, interest rates have a " conventional " element in their determination and do not always rise to this extent. Suppliers of money balances have then to operate *ad hoc* rationing schemes to deal with the excess demand.

The stabilising action of the quantity of money in this model may thus work through the effects of the rise in the interest-cost of borrowing on the components of aggregate demand. There seems to be little doubt that consumption and investment expenditures will be responsive to considerable changes in interest rates. But the evidence on this much-debated matter suggests that over some range of such changes there is no response. That is, over this range the interest-elasticities of both consumption and investment are zero. If this is so, then prices may rise to some extent before the consequential increases in interest rates begin to affect aggregate demand.

But in addition to interest-rate changes there may be a constraint on rising money expenditure through the fall in the real supply of money balances. Those who are denied access to money balances through the rationing processes of an imperfect capital market will be unable to increase their expenditures on goods or on factors of production. But the power of

this constraint is weakened in two ways. The rise in interest rates will reduce the volume of "idle" balances and make them available to finance higher expenditures; and the shortage of "active" balances will put pressure on their users to re-arrange the time-pattern of their receipts and expenditures so as to make greater use of these balances. That is to say, for both these reasons the velocity of circulation of money will increase. This will allow some rise in prices before the falling real supply of money balances begins to act as a constraint.

Thirdly, the Pigou effect will reduce expenditure in real terms, but probably only after a considerable rise in prices has significantly reduced the real value of the privately held public debt, and thus induced the holders of it to increase their real saving. Lastly, rising interest rates may bring about the expectation that the rise in prices is coming to an end. But there are few grounds for assuming that such an expectation will be quick in appearing.

The strength of the quantity of money as a stabiliser may thus be questioned in a number of ways. There are grounds for arguing that a significant rise in prices can occur before the stabilising effect of a constant quantity of money comes into operation.

The nature of the equilibrium to which the process now moves will depend upon the type of disturbance which is driving it on. To end the process the disturbance must be eliminated. In the present model this means the elimination of the supply-induced rises in money wage-rates. The stabiliser may do this in a number of ways. The rise in interest rates and the shortage of money balances may decrease the real consumption of households. For businesses a conflict will arise between the competing claims of higher money expenditure on labour and on investment.

It may happen that employers, with evidence of the shortage of liquidity, will be able to persuade employees that they cannot *both* give higher wage-rates and maintain the level of employment, and that full employment is to be preferred. In this event, if consumption has not already decreased, stability of prices will be restored at the ceiling output.

But if employees are unwilling to forego wage increases, either the consequences of strikes must be faced or the volume of investment (in either or both fixed capital and stocks) must fall. There may as well be a decrease in consumption as a result of the shortage of liquidity. The consequent fall in aggregate demand must now go far enough to bring about sufficient unemployment to weaken the monopoly position of organised labour and so end the upward push to their supply price. At the new equilibrium output will be below the ceiling.[1] Prices have risen, but the process has been a stable one.

The working of the second model can now be more briefly outlined.

[1] This ignores the important possibility that cycle-making factors may aggravate the decline in output.

Model B. To avoid supply-induced rises in prices and thus provide a contrast to Model A, perfect competition in all goods and factor markets is supposed here. Starting from an equilibrium of aggregate demand and supply at the ceiling output, a disturbance occurs in the form of an increase in investment brought about by, say, an innovation. Excess aggregate demand now starts a process in which prices are raised by excess demands in the goods markets and derived excess demands in the factor markets.

This process is constrained by a constant quantity of money. The strength of the constraint will depend on the same factors as those discussed in relation to Model A.

Once again the nature of the new equilibrium will depend upon the type of disturbance and the way in which the stabiliser acts on it. In this model rising interest rates and a shortage of liquidity will decrease either or both consumption and investment. This will gradually reduce the excess aggregate demand until equilibrium between aggregate demand and supply at the ceiling is restored. Unless cycle-making factors come into operation (as may happen in Model A), unemployment will not appear. As in Model A, prices have risen, but the process has been a stable one.

III

These two models can now be used to discover the precise nature of what is and what is not proved by the argument against the possibility of cost-induced inflation.

First, what is not proved is that a more or less lengthy process of rising prices cannot, other things being equal, be induced by an increase in any of the elements of aggregate demand. Model B has demonstrated this for an increase in investment, with the extent of the rise in prices depending on the ways in which the constant quantity of money acts as a stabiliser. A similar analysis can be applied to increases in consumption, government spending and exports, and to a decrease in the import function. Moreover, the analysis of the effects of a single increase in the quantity of money runs along the same lines, with the rise in money balances and the consequent fall in interest rates expanding one or more of the elements of aggregate demand. These are all demand-induced rises in prices.

Second, what is not proved is that, other things being equal, more or less lengthy processes of rising prices cannot be induced by changes in cost functions. This has been demonstrated for increases in the supply function of labour by Model A. A similar analysis can be applied to increases in profit margins, interest rates, rents and, with certain complications, to increases in import prices. These are all cost-induced rises in prices.

Third, what is not proved is that a shift in cost functions cannot induce a process of rising prices without simultaneous shifts in demand functions. In Model A the disturbing factor is a series of shifts in the supply function

of labour with the aggregate demand function unchanged. The rise in money wage-rates means higher money incomes, and therefore involves movements along given demand functions. But the functions themselves have not shifted.[1] It is thus incorrect to argue that only demand-pull and not cost-push can induce a process of rising prices.

What is proved is that an unchanged quantity of money will probably act as a stabiliser of a process of rising prices. This is true of both demand-induced and cost-induced rises in prices. But the way in which the stabiliser brings the process to an end is different in the two cases. Thus in Model A the shifts in the supply function of labour have to be eliminated, and a rise in unemployment may be necessary to achieve this. There is no excess aggregate demand to be removed. In Model B the excess aggregate demand has to be eliminated, but this may be achieved without increasing unemployment.

IV

It is thus seen that the contention that " cost-push is no cause of a rise in prices, it takes a demand-pull to produce it " is either incorrect or confused according to the degree of charity with which one views ambiguous propositions. With this mistaken aspect of the argument against the concept of cost-induced inflation cleared out of the way, the argument is now narrowed to a dependence on one or other of two propositions: (i) that, in contradiction to what has been argued above, a process of rising prices can only be caused by an increase in the quantity of money; or (ii) that a *continuing* process of rising prices can be caused by a *continuing* increase in the quantity of money and only by that.[2] These two propositions refer to different things: the first to both stable and unstable processes of rising prices; the second to unstable processes only.

The first proposition is the Quantity Theory of Money in its most strict form, *i.e.*, that which asserts a constant velocity of circulation. Under this theory a constant quantity of money is a perfect stabiliser of the level of prices. No change in cost or demand functions, other than an increase in the quantity of money, can raise prices. But reasons have been given in the analysis of Model A for variations in the velocity of circulation during a process of rising prices. The Quantity Theory in its most strict form is invalid, and therefore cannot disprove cost-push as a cause of at least stable processes of rising prices.

The second proposition is consistent with a denial of the Quantity Theory in its most strict form. It entails only the stabilising influence, not necessarily perfect, of the quantity of money on the level of prices. In the

[1] This is a potential source of confusion in the argument about cost-inflation which may be avoided by a recollection of elementary demand and supply analysis and the necessity for correct argument of distinguishing between shifts in the curves and movements along them.

[2] Cf. the wording in the quotation from Machlup given at the beginning of this article.

use that has been made of this proposition against the concept of cost-induced inflation, two implications are involved. First, that the quantity of money is the only effective stabiliser of inflationary processes. Second, that increases in the quantity of money on their own (and only that) will cause a *continuing* rise in prices, *i.e.*, an unstable inflationary process. Neither of these arguments is correct. Yet they are fundamental to the attempt to demolish cost-induced inflation by establishing the quantity of money as *the* cause of inflation, where that term is used to mean unstable processes of rising prices.

Comment must first be made on the question of definitions. But it is not unimportant on that account. What remains of the argument against the concept of cost-induced inflation depends on a very restrictive meaning being assigned to the term " inflation." It must be defined, not as the condition which brings about a process of rising prices, but only as the condition which brings about a continuing or unstable process of rising prices (either " creeping " or " galloping "). This is not the usual definition, and if it is to be adopted a new term, or set of terms, will have to be coined to cover stable processes of rising prices. But until such a change in the usage of the word occurs the ambiguous use of it will lead to incorrect inferences being drawn. The lengthy debate on cost-induced inflation confirms this. As it is, the literature on the subject studies both stable and unstable processes: Inflation is still inflation even though it may come to an end.

But changes in terminology will not confirm the quantity of money as *the* cause of inflation, even if that term is restricted to unstable processes. There exist other stabilisers of processes of rising prices. One such stabiliser is the system of public finance. Even if government expenditure is maintained in real terms, rather than fixed in money terms, the operation of a progressive tax structure will reduce aggregate real demand during a process of rising prices and tend to bring it to an end.

Another stabiliser is inelastic expectations in relation to future bond prices which will prevent these prices from rising without limit. There exists a large amount of bonds relatively free of default risk and having a variety of maturity dates. Prospective holders of these bonds have to take a view of the likely course of their prices over time towards their maturity values. In an uncertain world past experience of fluctuations in interest rates will play an important part in the formation of this view. The more interest rates fall, the greater weight will be given to the probability of a future rise which will involve capital losses for those who hold bonds. The growing likelihood of such capital losses will cause the elasticity of expectations of bond prices to fall gradually to zero as current bond prices rise. When this happens interest rates will have reached a minimum level.

A combination of these inelastic expectations and a given progressive system of public finance will prevent continuing increases in the quantity of money from causing an unstable rise in prices. Consider what happens

with continuing increases in money balances, other things being equal. These increases affect prices through their influence on aggregate demand. They will raise aggregate demand first by meeting any excess demand for "active" money balances which may exist in an imperfect capital market, and then through the response of consumption and investment to the consequent fall in interest rates. Excess aggregate demand will appear and prices will rise. But the fall in interest rates will come to an end, despite continuing money increases, because of inelastic expectations in relation to bond prices. As the latter rise, more and more people will come to doubt whether they can rise any further. When this doubt is universal interest rates will have reached a "floor" and will cease to stimulate further increases in aggregate demand. The excess aggregate demand created by the previous reductions in interest rates will now be gradually eliminated by the stabilising influence of the public finance system. Prices will then cease to rise even in the face of continuing increases in the quantity of money.

V

The search for substance in the attack on the concept of cost-induced inflation has brought out a number of points.

In the first place, while a fixed quantity of money is a stabiliser of inflationary processes, it is not the only stabiliser. At least two other factors, the system of public finance and inelastic expectations, share this role. Again, an inflationary process based on continuing increases in the quantity of money, other things being equal, will be stabilised by a combination of inelastic expectations in the bond market and the system of public finance. Money is neither a unique stabiliser nor the initiator on its own of unstable inflationary processes. The attempt to demolish the concept of cost-induced inflation by maintaining that increases in the quantity of money are *the* cause of inflation thus fails.

This invalid argument is one that persists in various guises. In the present context its form lies essentially in the view that the problem of inflation must be analysed primarily in terms of the quantity of money. This only obfuscates the study of inflationary processes. It had led to an ambiguous use of the term inflation. It has propelled a sterile argument about demand-pull and cost-push. It has involved the absurd claim of a single cause for many complex processes.

Inflationary processes cannot be explained in terms of a single cause. They are initiated in a variety of ways and rendered stable or unstable by a variety of influences. An explanation of them involves the interrelations between the disturbing factor (or factors) and the constant factors of a stabilising or destabilising nature. In this way many different kinds of inflation can be distinguished. Thus separated it is convenient to give them names for quick reference. The naming is often in terms of the disturbing

or initiating factor. But the latter is not the complete explanation of the process, *i.e.*, it is not *the* cause. Both the varying and the constant factors are required for the explanation. Thus demand-pull and cost-push are but the names for different inflationary processes. The search for *the* cause that will unite them is a delusion.

If this is recognised, then the substantive problems for analysis in inflationary processes become clearer. For example: what are the respective strengths as stabilisers of the quantity of money and the system of public finance? In what ways does the quantity of money act as a stabiliser? Is it mainly through the rising interest-cost of borrowing or largely the result of a shortage of money balances acting independently of their price? If the latter, then precisely where does the allocation of funds through an imperfect capital market operate to restrain expenditures? Will the stabilisers restore equilibrium at the ceiling output or below it? In the case of cost-induced inflation, will some degree of unemployment be necessary to prevent the upward push of wages on prices? If this is so, will it conflict with declared intentions as regards compensatory fiscal policies?

The understanding of inflation requires an analysis of all these questions. But economic analysis, as a study of means, is also needed for the formulation of adequate economic policies. The assertion that the quantity of money is *the* cause of inflation leads to the prescription of monetary policy as the only way to control inflation. There may be grounds for such a prescription, but this is not one of them. Inflationary processes can start and can end in various ways. A full knowledge of these is a prerequisite of adequate prescription, and may even influence actual policy.

MILES FLEMING

University of Bristol.

MAURITIUS: A CASE STUDY IN MALTHUSIAN ECONOMICS

MAURITIUS is a small isolated island lying far out in the Indian Ocean off the east coast of Africa. It is the outstanding example of a monocrop economy. No less than 99% of her exports are sugar or direct by-products of sugar; and she relies upon imports for the vast majority of her foodstuffs, clothing, other consumption goods, raw materials and capital equipment.

As a result of her history the population of Mauritius is very diverse in its racial, religious and linguistic composition. Some 5% of the population is made up of the Franco-Mauritian families, French in origin, using the French language, nursed in French culture, Catholic in religion, and owners and managers of the great sugar estates. About 25% of the population is Creole, an admixture of white and coloured races but based essentially upon the slaves who were brought in from Madasgacar and Africa before the abolition of slavery to work in the cane-fields. Some 66% of the population is Indian, the descendants of the indentured labour which was brought in after the abolition of slavery to produce sugar. There is a small but vigorous and enterprising Chinese population which accounts for 3–4% of the population and which dominates the retail trade. The British population is almost too small to show in the statistics, but includes the Governor, the Colonial Secretary, the Financial Secretary and a few other senior public servants.

In this island there has, since the end of the Second World War, been a great population explosion; and the purpose of this article is to take the case of Mauritius as an example in order to discuss in general terms one problem of economic analysis and policy which arises in the case of underdeveloped countries which are threatened with rapid population growth.[1]

Immediately after the Second World War there were great improvements in public health; and, in particular, malaria was eliminated. These medical changes have resulted in a fall in the death rate from 28 per 1,000 in 1936–40 to 12 per 1,000 in 1958, and, since better health increases fertility, a rise in the birth rate from 33 to 41 per 1,000 over the same period. As a result, the population, which before the War was rising by about ½% per annum, is now rising by about 3% per annum. Compound interest is a

[1] The author of this article was chairman of an Economic Survey Mission which visited Mauritius early in 1960 and has since then reported to the Government of Mauritius. Those who are interested in a more detailed examination of the economic problems of Mauritius can consult that report which is published by Methuen & Co. under the title *The Economic and Social Structure of Mauritius*. The academic generalisations in the present article are, of course, wholly the responsibility of the author of this article and do not necessarily represent the views of the other members of the Economic Survey Mission.

powerful force. It is reckoned that, if fertility rates remain at their present level and if mortality rates are brought down (and there is no medical obstacle to this) to the levels ruling in the Western developed countries, the total population of Mauritius, which is now somewhat over 600,000, will be 3 million by the end of the century.[1]

This demographic change has been very recent and very sudden. There is now an exceptionally large number of young children rising towards working age. If one looks ahead fifteen years to 1975 one can say that the number of persons of working age in Mauritius will, barring some unexpected major calamity, almost certainly be about 50% greater than it is now. All the persons who will be of working age in fifteen years time have already been born; and Mauritius would be faced with this enormous increase in her working population for whom productive employment must be found even if no baby were born in the island from to-morrow onward. The demographers tell us that this particular figure is not likely to be affected much by what happens over the next fifteen years to mortality. If mortality is brought down farther towards the levels in Western developed countries, the number of workers fifteen years hence will, of course, be somewhat greater than it would otherwise be. But this is a minor consideration. The major consideration is that past demographic changes have already decreed that Mauritius must now prepare for a 50% increase in her working population over the next fifteen years.[2]

It is the purpose of this article to discuss certain problems involved in absorbing so sudden and great an increase of the working population into the economy. The analysis will proceed on the assumption that emigration from Mauritius will be able to provide at best only a minor mitigation of the problem. The arguments for making this assumption cannot be developed here, but are discussed in the report of the Economic Survey Mission.

The analysis will also proceed without any consideration of the future course of fertility and births in Mauritius. This is not to suggest that this is in fact unimportant. On the contrary, it is likely to be decisive for the future welfare of Mauritius. For example, if fertility rates remain at their present level the number of children under fifteen years of age is likely to increase by some 66⅔% over the next fifteen years, thereby greatly increasing the burden of their support upon the present generation of working age and presenting the educational authorities with an almost insoluble problem.

[1] These and the following demographic figures are taken from the report of Professor Titmuss on "Social Policies and Population Growth in Mauritius" also published by Methuen & Co.

[2] This estimate of a 50% increase in the working population to be absorbed into productive employment allows nothing for the economic development which is necessary in order to take up any existing slack in the economy. There is almost certainly some considerable unemployment and underemployment in the economy. A recent survey suggested that there was heavy unemployment in the economy. This has been disputed, and the statistical evidence is not perhaps conclusive. But there are undoubted symptoms of at least some underemployment, such as the great pressure on the Government to pad the public service and the public works department with unnecessary posts.

Moreover, fifteen years constitute a quite arbitrary and short period in the life of a community; although it is true that all the persons who will be of working age fifteen years hence have already been born, it is not a matter of indifference whether the rapid increase in the size of the working population will continue in the following fifteen-year period. By heroic measures it may be possible to cope with one 50% increase in the working population, although it may well take more than fifteen years to absorb all of it into productive employment; it is quite another matter to absorb indefinitely a 3%-per-annum increase of population.

Indeed, in the author's opinion, Mauritius faces ultimate catastrophe unless effective birth control can be introduced fairly promptly into the island. The problems of introducing family planning are discussed at length in the Titmuss Report (see page 533) and the ultimate economic necessity for family planning is a main topic of the report of the Economic Survey Mission. These problems will not be discussed in this article which is concerned with the limited question how to absorb a once-for-all 50% increase of workers into an economy which is already experiencing population pressure. Mauritius has got to face this limited problem whatever happens to the future of the birth-rate.

Even if she is not already, Mauritius will soon be a country with an excess working population seeking employment. What is the right way to cope with a situation of this kind? Let us consider what classical economic analysis would have to say on this issue. Mauritius will be an economy in which unskilled labour is extremely plentiful and land and capital equipment are scarce. Such a situation would be one in which, in the classical competitive economy, the rent of land and the rates of profit and interest would rise and the real wage-rate would fall. This would give every incentive to private producers as well as to public authorities to go in for the production of things which required much labour and relatively little land and capital for their production and, in the production of any product or service, to choose those processes and techniques of production which used much labour and little land and capital.

The ultimate purpose is, of course, not to give employment, but to obtain the largest possible output from the community's (scarce) resources of land and capital and (plentiful) resources of labour. And this is what the classical price mechanism might be expected to bring about. A rise in rent and interest and a fall in wage-rates will induce producers to employ more labour with a given amount of land and capital if, but only if, a larger output can thereby be produced. No entrepreneur will take on more labour with a given amount of land and capital in order to produce a smaller or less-valuable total output. Indeed, it is one of the main merits of this use of the price mechanism that it will not choose inefficient techniques in order to make work for work's sake.

There can be little doubt that this principle is of the utmost relevance

in an economy such as that of Mauritius. A few examples must suffice. In cane-fields weeding can be carried out either by hand or else, in part at least, by the use of imported chemical herbicides. Which method it is profitable for the sugar estates to use depends essentially upon the wage and availability of labour. Another example is the handling of sugar when it has been produced. At present, sugar is put into bags at the factory on the sugar estate, transported by rail to Port Louis, carried by hand from the rail head on to the ship, where the bag is opened and emptied into the ship's hold. The alternative method of bulk handling, which is at present under discussion, would be to load the sugar automatically into special containers on road vehicles at the factory, to discharge the sugar from these vehicles automatically into silos at the quayside and to discharge the sugar automatically direct from the silos into the ship's hold at the quayside. This method would economise much labour in stevedoring at Port Louis, in handling the sugar in the factory and in the growing of the hemp and the manufacture of the hemp into bags, which is done at present at a government factory in Mauritius. On the other hand, it would involve very heavy capital expenditure on the new road vehicles, on deepening the harbour to bring the ships to the quayside, on the new equipment at the port and so on. Whether or not it is the cheaper method depends essentially upon the wage-rate of labour compared with the cost of acquiring the necessary capital.

A further example is given by the problems involved in the establishment of a tea industry in Mauritius. Tea is a rather labour-intensive crop and needs a higher level of employment per acre than sugar. There are prospects that Mauritius might be able to produce good-quality tea. Just because tea is a rather labour-intensive crop it is very appropriate as a way of saving land and using labour. But just because it is a labour-intensive crop the wage element in its cost is of great importance. At present the wage-rate in Mauritius is significantly higher than in Ceylon and East Africa, with whose teas Mauritian tea would have to compete. The success of this new avenue for employment will be greatly affected by the cost of labour in Mauritius.

Mauritius will be able to find productive employment for a greatly increased working force only if she can establish and expand some manufacturing industries. She cannot rely on finding employment for a greatly increased population in her present staple industry, namely sugar. The sugar industry is a highly progressive one in which output per worker employed is constantly rising. At the same time the total amount of sugar which Mauritius may export is strictly limited under the Commonwealth and International Sugar Agreements. Though it is to be expected that the expansion of world demand will enable the Mauritian quotas under these Sugar Agreements to be raised, it would be foolhardy to assume that they will be raised much more rapidly than the output of the existing number of workers in the sugar industry. In any case, apart from these marketing problems there is a strict limit to the amount of land on which sugar can be

grown, and this must set a strict upper limit to employment in the sugar industry in Mauritius. Other lines of agricultural production are capable of some significant expansion; but in the end limitations of land will make it impossible to find sufficient employment in these lines of agricultural production.

Mauritius must develop some industries. But in manufacturing industry the island starts with many disadvantages. She has little technical know-how in manufactures or experience, outside the sugar factories, in the conduct of industry; she has little technical training; she has few raw materials; she is not rich in capital; and her domestic market alone will not provide a sufficient market for large-scale production. She must emulate in a minor way economies such as Hong Kong, Jamaica, Japan and the United Kingdom, where raw materials are imported to be made into manufactures for export. But can Mauritius establish such manufactures except on the basis of cheap labour? Initially, at least, plentiful labour will be her one comparative advantage.

While the simple classical answer would be to reduce the wage-rate in Mauritius, in fact in recent years exactly the opposite has happened. After a considerable period of stability, both of the cost of living and of the money wage-rate, between 1956 and 1959 the wage-rate in the sugar industry (which sets the pattern for the rest of the island) went up by some 45%, while the cost of living remained constant. Here in a most marked form is the basic economic dilemma or paradox of such communities. The sugar industry was certainly very prosperous in the sense that the big sugar estates were making very good incomes from rent and profits, and the political awakening of the underdog in Mauritius has not unnaturally been associated with aggressive trade-union action, which has pushed up the wage-rate in the sugar industry as a method of redistributing part of the wealth of the island. But from the point of view of getting the best use of resources in Mauritius there is little doubt that the wage-rate ought to be very low.

Moreover, the effect of the wage-rate on the level of rents and profits in an economy like that of Mauritius will affect the rate of economic development in another way. In Mauritius the big sugar estates do in fact plough back a large part of their profits for the expansion of the sugar industry; the rate of profits tax is high, the rates of personal income tax on the higher incomes are high and progressive, and these direct taxes are collected by an efficient tax administration. The result is that a substantial part of the high gross profits and rents either goes direct into the capital development of the sugar industry or goes to swell the Government's budgetary revenue, from which capital development outside the sugar industry is largely financed by the State. A high wage-rate is also, therefore, liable to reduce the rate of economic development by reducing the sources of private and public capital accumulation.

This is perhaps the basic economic conundrum of such overpopulated

underdeveloped countries. Let us take an extreme example and consider a country which is so overpopulated that if all available labour were employed the marginal product of labour would be zero. Then to get the most out of the country's resources and to maximise its national income labour should be free to all who want to use it. But, of course, if the wage-rate is set at zero, while the national income may be maximised it will all go in rents, interest, dividends and profits to the owners of property, and none of it will go to labour. If the wage-rate is set at a level which gives labour a reasonable share of the product, then there will be under-employment and unemployment; foreign capital will not be attracted as it might be by the high rate of profit which would result if the labour which it employed were freely available to it;[1] traditional labour-intensive processes and products will be discouraged; engineers and technicians, who in any case will normally have been trained in developed countries where the need is to save labour rather than capital, will not be encouraged to apply new scientific knowledge in devising new ways to enable much labour to work effectively with little capital equipment; the economy will not be able to compete as it should with foreign producers of labour-intensive products; and the sources of capital accumulation, and so of economic growth, may be dried up.

What are the theoretical possibilities of squaring this circle and of introducing an economic system which enables labour to be treated as a really cheap element in the cost of production but results nevertheless in a reasonable distribution of the national product? One can discuss such systems under six main heads.

1. Suppose that by some wave of a magic wand the ownership of a considerable amount of property could be transferred from the private citizen to the State without the State incurring any debt to the private citizen in respect of that property. The Government would have a considerable income from that property. If, then, there were a fall in the money wage-rate in order, in the ways discussed above, to promote economic efficiency and growth in the economy, the Government's income from profits and rents would be increased and it could use its income from property to distribute some form of social benefit to maintain the incomes of the workers whose wage income had fallen. Moreover, by deciding how much of its income from property should be so distributed in social dividend and how much should be saved and added to its budget surplus to finance capital

[1] The fact that in many underdeveloped countries the wage-rate is higher than it would be in full-employment competitive equilibrium may be one of the main reasons which explains the paradox that capital appears to be attracted for investment into developed countries such as the United States, the United Kingdom and Germany, where the ratio of capital to labour is already high, rather than into underdeveloped countries where the supply of capital is low relatively to that of labour. The return on capital in such underdeveloped countries would be much higher if the wage-rate were reduced to correspond to the marginal product of labour in conditions of full employment.

development, the Government would be in a good position to control the total amount of capital accumulation, and so the rate of economic growth.

But, in the absence of a revolutionary situation which on other grounds would, in Mauritius at least, do much more economic harm than good, this solution can be adopted only very gradually. For the Government can build up public ownership of income-bearing property unencumbered by an offsetting public debt only gradually as it uses an annual budget surplus to improve its capital position. In the long-run this is an important way in which countries such as Mauritius can aim, at least in part, to make low wage costs compatible with a reasonable distribution of income. But it can hardly be relied upon to make any very great immediate impact on the problem.

2. Suppose that by some wave of a similar magic wand the ownership of property could be made much more equal without in any way diminishing the efficiency with which land and capital were used for productive purposes. The direct conflict between the desire for a high wage-rate to give a reasonable distribution of income and for a low wage-rate to promote employment in an overpopulated economy would be solved. Suppose that the representative citizen were a representative property owner as well as a representative wage-earner. If, on grounds of economic efficiency, the wage-rate must go down and the rate of profit up, the representative citizen would gain on the roundabout of his property what he lost on the swing of his labour. This sort of solution might have some social and political advantages over that of a wide extension of the State ownership of property; but, together with all the other solutions discussed below, it would have one economic disadvantage in that the State might have to raise substantial sums in tax revenue to provide a budget surplus for the public finance of much of the capital accumulation needed for economic growth. For all methods of redistributing income more equally will probably reduce private savings, and the State ownership of unencumbered income-bearing property is the only source of finance for an offsetting increase in public savings without having to impose additional taxes for this purpose.

It is impossible in this article to consider at length by what measures in a free society the ownership of property might be more equally spread among the citizens of that society. This is a badly neglected subject which merits very full treatment, and there is much to be said on the question. But once more, short of a sudden revolution, which on other economic grounds is greatly to be deplored, this is a solution which in developed and underdeveloped countries alike can be introduced only very gradually. It certainly cannot deal quickly with the pressing problems of Mauritius.

3. A third type of solution which is very closely connected with the one just discussed is the solution of self-employment. For example, in Mauritius, as already explained, the production of tea, which is labour-intensive, is probably very justified in terms of real comparative costs, but it may well be

threatened by the height of the money wage-rate. One way round this problem would be the organisation of tea production on the basis of small-holdings in which the owner and his family produced tea not for a given money wage but for what it would fetch on the world market. There are, of course, many problems of efficiency of production on small-holdings. In the case of Mauritian tea, for example, it is essential to ensure that only tea of a uniformly high quality is produced. Production of tea on small-holdings would have to be organised so that there were some centralised processing of leaves and some centralised supervision of the type of tea planted and of its mode of cultivation. But if these problems can be solved, the self-employment of the small-holder as compared with the employment of labour for a wage on the large estate certainly helps to get round the basic dilemma discussed in this article.

It is, however, important to realise what it does and what it does not do. Let us take a very simple numerical example. Suppose that in our economy labour is so plentiful that its marginal product would be zero if it were fully employed. Suppose that the owner of an acre of land would, if labour were available free, use 100 units of labour on his land to produce 100 units of

	I.	II.	III.	IV.
Amount of land	1	1	1	1
Amount of labour	100	50	100	100
Output	100	75	100	100
Wage-rate at which a unit of labour is hired by the landlord	0	1	—	—
Total wage income	0	50	75	0
Rate of rent at which a unit of land is hired by the workers	—	—	25	100
Total income of landowner	100	25	25	100

product. His income as a landlord would be this 100 units of output, since his wage cost was zero (see Column I of the table). Suppose now that the wage-rate is fixed not at zero but at 1 unit of output, and that in these conditions it would pay our landowner to employ only 50 units of labour to produce only 75 units of output. His total output is now 75, his wage bill is 50 and his income from land is therefore only 25. Suppose that this wage system of employment is in operation all over the economy. Then the income from a unit of land is 25, the wage of labour is 1, but at least half the labour force is unemployed or underemployed (see Column II of the table). Suppose now that a worker were able to hire a unit of land at the current rent of 25 and applied to it 100 units of his own and his family's labour to produce 100 units of output. He is able to obtain an income of 75 instead of only 50 for himself and his family because—since he and his family are underemployed—he does not mind working on his land until there is no more productive work which he can find to do on it (see Column III of the table). In other words, in a general milieu of wage employment,

self-employment as an exceptional device is a way of expanding employment to the benefit of the workers without any detriment to the landlord and without any change in the ownership of the land.

But suppose that the system of self-employment became general throughout the economy. The position would be very different. We imagine now all landlords hiring out their land at a rent of 25 to self-employed workers who apply 100 units of labour to each unit of land and produce 100 units of output, of which they keep 75 for their own income (see Column III of the table). But why should the landlords show such moderation? If there is a scarcity of land and plenty of working farmers there is nothing to prevent landlords from raising the rent from 25 much more nearly to the full 100 which represents its value to the working family. In this case the full shift from wage employment to self-employment will have increased output from 75 to 100; but it will have reduced the income of the workers from 50 towards zero (see Column IV of the table).

This, of course, will not be the case if the change is combined with a total or partial shift in the ownership of the land to the self-employed worker. In our example, if the previous owner could by law get only a fixed ground rent of 25, while the new self-employed worker can otherwise do what he likes with the land, the shift from wage employment to small-holding self-employment would raise output from 75 to 100 and the worker's income from 50 to 75 (see Column III of the table). In brief, the introduction of small-holding self-employed labour in an overpopulated country can help to solve the clash between the efficiency of a low wage and the equity of a high worker's income either if it is introduced merely as a marginal device in certain occupations or else if it is combined with some legal changes which in fact give the small-holder at least a partial interest in the ownership of the land. In the latter case it is, of course, to this extent a special form of the general principle of a wider spread ownership of property discussed under (2) above.

4. A fourth line of approach to the solution of our dilemma is the subsidisation of employment by the State. This can take many forms. It might mean that a State subsidy of so much a week was paid to every employer for every worker which he employed. Or the subsidy might be paid only in respect of workers employed in certain special lines of activity—for example, in all manufacturing establishments employing more than a certain number of persons. In all these cases it would, however, have the effect of making the wage received by the worker greater than the cost to the employer of employing an additional worker, and this is, of course, exactly what is needed to resolve the basic paradox.

But here again it is important to realise what the device does, and what it does not, achieve. The snag is, of course, the problem of raising the additional tax revenue needed to pay the subsidy on employment. Let us suppose that taxation is raised by an income tax on non-wage incomes, *i.e.*,

on profits and rents. Then the entrepreneur is favoured by the subsidy on the labour which he employs, but is hit by the additional tax which he must pay on the profits and rents which he makes, the subsidy in total amount just offsetting the extra taxation. Something is gained. The entrepreneur who goes in for a specially labour-intensive product or process of production will be favoured; he will have a specially high ratio of wage cost (on which he receives subsidy) to income on land and capital (on which tax is paid). The system will give a definite incentive to employ more labour relatively to land and capital, which is what is wanted.

But what this system will not do is shown by comparing its effect with the effect of a straightforward reduction in the wage-rate and rise in the rate of profit on the attraction of outside capital into the economy in question. Suppose that the ownership of property in Mauritius were so widespread that the Mauritians could deal with their problem simply by reducing the wage-rate in Mauritius and permitting the consequential rise in profits and rents. This would give an added incentive for Mauritian and foreign owners of capital to invest their capital inside rather than outside Mauritius. But if the problem is met by a tax on profits and rents used to pay a subsidy on the employment of labour, the average owner of property will gain on the wage subsidy just about as much as he loses on the tax on income from property and, generally speaking, will have no more or less incentive to invest in Mauritius rather than elsewhere, though what capital is invested in Mauritius will be used to employ a larger amount of labour.

In conditions such as those of Mauritius there is a further reason why not too much reliance should be placed on this method of employment subsidies. This is the problem of administration. In a community where administrative experience is limited, and where loyalties towards the members of the same race and of one's own extended family are very strong, the problem of ensuring that an entrepreneur's wage list was not padded with otherwise underemployed cousins and second cousins whose main function in the firm was to be the occasion for a subsidy would be very difficult. It may be necessary for this reason to make use of this weapon of subsidies on employment only in much more limited and rough-and-ready forms. In an economy such as Mauritius, in which it is essential to introduce manufacturing industries in order to give employment, it will almost certainly be necessary to give infant-industry assistance of one kind or another to selected new enterprises which are considered promising, whether this help be given by tariff protection, by the subsidisation of output, by the provision of cheap loans, by remission of taxation or by other means. In the selection of the enterprises to be aided the authorities can give high weight to the probable labour-intensity of the enterprise. Other things being equal, the authorities in an economy such as Mauritius should choose for assistance those enterprises which are likely to use a high ratio of labour to capital and land in their production; and in appropriate cases, where adminis-

trative difficulties would not be too formidable, they may be able to go farther and to give their support in the form of a subsidy on the number of persons employed.

There is, in any case, one form of support which should be avoided in the Mauritian type of situation. At present in Mauritius, as in many other British overseas territories, following the United Kingdom pattern, assistance is given to the building up of new enterprises and the expansion of old enterprises through a system of investment and initial allowances. These are in fact tax remissions which depend upon investment in new capital equipment. They are, therefore, specially favourable to the industry and processes which use a high ratio of capital to labour. They may be appropriate enough in the United Kingdom or in the United States of America, where in conditions of full employment labour may be very scarce but capital relatively plentiful, so that it is difficult to absorb all new savings in new investments. But this is the precise reverse of the principle which it is desirable to apply in an economy such as Mauritius, where whatever form of assistance is given should favour the industries and processes which employ a high ratio of labour to capital. A general remission of taxation on all or selected new enterprises is to be preferred to a remission of tax which is geared to heavy expenditure on capital equipment.

5. A fifth device which might be used is the raising of revenue in order to subsidise the worker's cost of living. This policy has to a limited extent already been applied in Mauritius, where it has taken the form of a government monopoly of the import of rice, the staple diet of the Mauritian, the authorities selling the imported rice at a low stable price, which for a number of years involved a loss on the import of the rice. Subsidies on the cost of living are administratively practicable; they can affect all workers in all occupations; and they effectively raise the real wage to the worker by reducing his cost of living without raising the money cost of employing labour by the entrepreneur. If a general subsidy on all employed labour is administratively impracticable it would seem that much the same result ought to be capable of achievement through a system of cost-of-living subsidies.

Such a system would, of course, not avoid the problem of raising tax revenue, though in this case the tax revenue would be needed to pay a subsidy to cover the loss in, say, the trade in rice rather than to pay a subsidy direct to the employer of labour. In this respect this system would have the same limitations as a system of subsidies on employment. But the policy of subsidising the cost of living would have two special disadvantages which could be avoided by a direct subsidy to employment if it were administratively possible.

The first of these two problems is probably of minor importance in the conditions of the Mauritian economy, but it may be worth mentioning for the sake of completeness of the analysis. For administrative reasons

it is possible to subsidise the cost of living only by subsidising one or two particular but important items in the cost of living. In the case of Mauritius it would mean, above all, subsidising the cost of rice. This leads to some distortion of demand. The subsidised articles are made especially cheap to consumers relatively to the cost to society of acquiring them. Any consequential heavy shift of demand away from unsubsidised on to subsidised articles may involve a social loss because it involves a shift of consumers away from products which, relatively to their selling prices, cost little to society to acquire on to products which cost much to acquire. This consideration is relatively unimportant, however, if the elasticity of substitution in consumption between the subsidised and the unsubsidised products is low, so that there is in fact very little wasteful distortion of demand; and this is probably the case with rice in Mauritius, where the amount of rice needed by each consumer is a relatively fixed quantity.

But the second limitation to the use of the weapon of cost-of-living subsidies is a much more serious practical matter. In the case of direct subsidies on employment the cost of labour to the employer can be reduced by the amount of the subsidy without any reduction in the money wage-rate; the real wage to the worker is maintained because his money wage and the cost of living are unchanged. In the case of a subsidy to the cost of living the cost of labour to the employer can be reduced only if the money wage-rate is reduced; the real wage to the worker is maintained because the cost of living is reduced *pari passu* with the reduction in the money wage-rate. In other words, in order to get a net reduction in the cost of labour to the employer the cost-of-living subsidy—unlike the direct subsidy to employment—involves getting the agreement of the trade unions to an actual reduction in money wage-rates.

This is likely to prove a very difficult operation in many countries, and Mauritius is no exception. If such agreement cannot be reached, the cost-of-living subsidy cannot be used to bring about any substantial reduction in money wage costs, but must be relegated to the secondary role of helping to prevent increases in money wage costs which might otherwise occur. This secondary role can be of extreme effectiveness in a general world inflationary situation. If all money prices and costs including wage-rates are going up by, say, 3% per annum, then to hold money wage-rates and the cost of living constant by means of a cost-of-living subsidy is in its effect more or less equivalent to reducing money wage-rates and the cost-of-living by 3% per annum in an environment in which all other money prices and costs are constant. But unfortunately from this point of view the post-war inflationary tendency of world prices has at least temporarily ceased; and if a country such as Mauritius intended now to obtain any marked effect from a cost-of-living subsidisation policy this would involve a conscious agreement between the government authorities who paid the cost-of-living subsidy and the trade unions and employers' federations who fixed the money wage-rate.

It would, of course, be possible to achieve the desired result by a once-for-all depreciation of the Mauritian rupee in terms of sterling and other foreign currencies, provided that the consequential increase in the prices of importable and exportable products in terms of Mauritian rupees were offset by increased cost-of-living subsidies and were not accompanied by a rise in the Mauritian money wage-rate. It would in Mauritian conditions be extremely dangerous to start a vicious circle of inflation—depreciation of the rupee leading to rising prices, leading to rising money wage-rates, leading to further depreciation and so on. An increase in cost-of-living subsidies to reduce wage costs without a change in real wage incomes would have to be accompanied by the agreement of the workers to allow *either* a once-for-all reduction in the money wage-rate *or else* a once-for-all depreciation of the exchange rate without any rise in the money wage-rate.

6. A sixth device is the introduction of some element of social-security benefits whereby the State raises revenue to pay out to the citizens unemployment benefit, sickness benefit, family allowances, old-age pensions and the like. With such a system the standard of living of the workers could be maintained even though the money wage-rate, and so the cost of labour to the employer, were reduced. Like the methods of direct subsidies to employment and cost-of-living subsidies, it involves all the problems of raising the necessary tax revenue to finance the scheme; and like the method of cost-of-living subsidies, its introduction as a means of lowering wage costs would involve obtaining the agreement of the workers *either* that the money wage-rate should actually be reduced, *or else* that a depreciation of the rupee should be allowed to raise the cost of living without any accompanying rise in the money wage-rate, when these social-security benefits outside the wage-rate were introduced. In the absence of any such agreement one can only hope to achieve a much more moderate result from it—namely, that in future it will be easier to prevent further rises in the money wage-rate because of the existence of social-security benefits outside the wage system. The method of social-security benefits has, however, two possible advantages over that of cost-of-living subsidies. First, it does not lead to a distortion of demand on to any specially subsidised commodities; and secondly, it enables the benefits to be concentrated in a more direct manner on to those who most need help—the sick, the unemployed, the children, and so on.

This method of coping with the problem is particularly relevant in Mauritius at the present time. At the same time that the Economic Survey Mission was making its inquiries in Mauritius, Professor Titmuss was in Mauritius with a Mission preparing a report for the Government of Mauritius on how they might introduce a social-security system into the island. The first quarter of 1960 was indeed a heavy time for the island of Mauritius, which in that short period was visited not only by the two cyclones Alix and Carol but also by the two Professors Titmuss and Meade. The

destruction that was started by Alix was completed by Carol. What about the relationships between the two professors? For the demographic reasons already explained at length, it is going to be a great achievement if Mauritius can find productive employment for her greatly increased working population without a serious reduction in the existing average standard of living. If money wage-rates are set at high levels and, in addition, heavy taxation must be imposed to finance new social-security arrangements, the prospects in Mauritius will be bleak. But if a moderate element of social security can be used as a means of establishing a really effective policy of wage restraint, this is a system which makes very good sense in Mauritian conditions.

This is not, of course, the whole of the Titmuss story. The administration of public assistance in Mauritius was rapidly breaking down, and its costs rapidly mounting under the pressure of the growing population. Some extensive recasting of social-security arrangements was, therefore, in any case essential. Moreover, there is now a chance to recast these arrangements in a way which helps to establish the pattern of a three-child family instead of making the very large family a financially paying proposition, as it was tending to become under existing arrangements. Family planning and family welfare can be co-ordinated. These matters are studied in detail in Professor Titmuss' report. For the purpose of this article it is necessary only to make the point that in an overpopulated underdeveloped country such as Mauritius low wage-rates combined with a social-security system constitutes a very sensible economic framework.

As a practical policy in Mauritius in the immediate future probably the best that can be done is to aim at a mixture of various devices. Self-employment on small-holdings, together with a wide ownership of land, may in some cases be helpful, but it should be encouraged only if it can be organised in schemes which sufficiently ensure the efficient conduct of the small-holder's operations. Financial assistance to infant enterprises by way of tax remission, subsidisation or tariff adjustment can be given with special liberality to labour-intensive products and processes; and wherever possible forms of help which encourage capital-intensive production (such as investment allowances) can be avoided and forms of help which encourage the employment of labour (such as employment subsidies) can be used. Government trade in rice can continue to be used to stabilise the cost of living; and this, together with the introduction of social-security benefits, might be used to get the effective agreement of the trade unions to a conscious policy of wage restraint. Meanwhile an annual budget surplus can be used by the Government to finance productive capital investment, which will gradually give the Government an income from property which can be used to support the standard of living of low-wage workers.

J. E. MEADE

Christ's College,
Cambridge.

BASIC ASSUMPTIONS IN PREFERENCE THEORY

1. In recent years the basic logic of demand theory has become increasingly well articulated, and the mutual relations between its two main variants—ordinal preference theory and revealed preference theory—have become increasingly well cleared up, apart from relatively minor technical points concerning the relevance of continuity conditions on the demand functions.

It therefore somewhat reduces the pedagogical value of Mr. Brownlie's note (this Journal, Vol. LXX, September 1960, pp. 613–16), which attempts " a brief and simple synthesis of various derivations of the central conclusion of demand theory," that it repeats a number of incorrect statements.

2. The first error seems to have been carried over from Professor Hicks' *A Revision of Demand Theory*, and has been noticed by Winsten, Gorman, and by Read and myself.[1] Let us suppose that the consumer has a complete weak ordering of all possible (or all relevant) combinations of those commodities with which he is concerned. By this we mean that there is an ordering relation " at least as good as," such that: (i) for *any* two distinct combinations x and y, either x is " at least as good as " y or y is " at least as good as " x (both conditions may hold); (ii) for any combination x, x is " at least as good as " itself (a pretty trivial but necessary condition); and (iii) for any three distinct combinations x, y and z, if x is " at least as good as " y, and y is " at least as good as " z, then x is " at least as good as " z.

Now the commodities in question may be continuously divisible, or they may not. But *even if they are*, it does not follow that we may represent this complete weak ordering by a continuous utility function. Therefore it does not follow that indifference curves exist. A *further continuity condition on the consumer's preferences* (not on the commodities only) is required. This was first noticed by Georgescu-Roegen in 1936, has since been stressed by Wold and was very carefully analysed by Debreu in 1954.[2] Even if some of the commodities are indivisible, we may still have a continuous utility function, provided that at least one of the commodities is continuously divisible.[3]

[1] See C. B. Winsten's review, *Journal of the Royal Statistical Society*, Series A, 1957, pp. 359–60; W. M. Gorman, *Metroeconomica*, 1957, pp. 167–80; and P. K. Newman and R. C. Read, *Review of Economic Studies*, 1958, pp. 197–9.

[2] N. Georgescu-Roegen, *Quarterly Journal of Economics*, 1935–36. H. Wold, *Skandinavisk Aktuarietidskrift*, 1943, and *Demand Analysis*, 1953, Part II. G. Debreu, in pp. 159–65 of *Decision Processes* (ed. Thrall, Coombs and Davis), 1954; a more restrictive but easier treatment is to be found in his *Theory of Value*, 1959.

In a paper recently submitted for publication, R. C. Read and myself have surveyed the general problem of representing preference orderings.

[3] See the constructive proof for this case in Newman and Read, 1958, *op. cit.*

The only necessary relation between continuity of commodities and continuity of preferences is that discontinuity of *all* commodities implies discontinuity of the utility function (though even here appropriately sophisticated definitions may produce a form of continuity).

Alternatively, we may assume not that the consumer has a complete weak ordering, but that he has a complete *strong* ordering. By this we mean that there is an ordering relation "preferred to" such that: (i) for any two distinct combinations x and y, either x is "preferred to" y or y is "preferred to" x; (ii) for no combination x, is x "preferred to" itself; (iii) for any three distinct combinations x, y and z, if x is "preferred to" y, and y is "preferred to" z, then x is "preferred to" z; and (iv) for any two distinct combinations x and y, if x is "preferred" to y, then y is *not* "preferred to" x.[1]

Mr. Brownlie states that "strong ordering implies discontinuity [of the commodity space]" (p. 615). That this is not so can be seen by a commodity space, consisting of two or more continuously divisible goods, strongly ordered by a "lexical" ordering (*i.e.*, by relative magnitude of the first component, and when there is a tie in this, by relative magnitude of the second component, and so on).

The upshot of this discussion is that there is only the most tenuous relationship between continuity of commodities and continuity of preferences, regardless of whether the ordering is weak or strong. One form of the continuity condition on preferences required may be expressed roughly as follows: if a batch x is preferred to another batch y, then all the batches "very close" to x must be preferred to y; and *vice versa*. This seems very reasonable, but clearly need not hold in every case.

3. Mr. Brownlie is also incorrect in implying that all that the substitution theorem requires "is that the decisions (not preferences) of the consumer are strongly ordered and consistent." It is important to bear in mind what the strong ordering relation might be here. The most obvious candidate is the relation "x *is chosen* rather than y, when both are available." Now Samuelson's Axiom of Revealed Preference, which Mr. Brownlie cites in its most restrictive form,[2] states that this relation is indeed asymmetric and irreflexive. But it is neither connected nor transitive, and is therefore not an

[1] In logic, property (i) is known as connectedness; (ii) is irreflexivity; (iii) is transitivity; and (iv) is asymmetry. Thus a complete strong ordering is connected, irreflexive, transitive and asymmetric; a complete weak ordering is connected, reflexive and transitive. If an ordering is not connected, then it is not complete and is said to be *partial*. The terminology concerning orderings is not fixed; that used here follows Arrow's treatment in *Social Choice and Individual Values*, 1951.

[2] That is to say, in a form which rules out the possibility that the "equivalence curves" defined below might have linear segments; this case can be handled, but with much greater difficulty, since the demand functions are then not single-valued.

I use the terms Samuelson's Axiom and Houthakker's Axiom rather than the more usual terms "Weak Axiom" and "Strong Axiom" in order to avoid confusion between axioms and orderings; on the practically non-existent connections between these two uses of "weak" and "strong," see P. Newman, *L'Industria*, 1958, pp. 244–6.

ordering relation, either complete or partial;[1] the language of ordering is inappropriate here. Nevertheless, as Mr. Brownlie rightly says (restating Samuelson's original position), from this one axiom we can deduce most of the important results in demand theory, including especially the substitution theorem.

4. There is an ordering relation around the place however, which can be constructed using the basic revealed preference relation, which I shall denote by R. If two combinations x and y are such that xRy (*i.e.*, x would be chosen rather than y when both are available), and another pair y and z are such that yRz, then we say that x is " indirectly revealed preferred to " z, and write xQz. We proceed similarly for sequences of more than three batches.

From its definition, the relation Q is obviously transitive. But it is connected, asymmetric and irreflexive as well? In other words, it is a strong ordering relation? Hugh Rose was the first to prove the not intuitively obvious fact that if xQz, then xRz.[2] This requires us to assume further that: (a) the demand functions exist; (b) the consumer chooses only points on his budget plane; and (c) every possible commodity bundle is chosen in some market-situation, which is the counterpart of the convexity assumption on preferences in the ordinal theory. Rose's result implies, using Samuelson's Axiom, that Q is an asymmetric relation.

By assuming that the demand functions are suitably continuous, one can further show that all the points of the commodity space are connected one way or the other to a give batch x by the relation Q, *except* for a set of bundles lying on a convex " curve " through x. Thus Q is very nearly a connected relation.[3]

[1] This means that the relation does not hold between all pairs of batches, and certainly is not transitive. I myself missed these points some years ago (*Oxford Economic Papers*, 1955, pp. 151–69), and was corrected by Rose, *L'Industria*, 1957, pp. 643–52; and by Houthakker, *Oxford Economic Papers*, 1957, p. 234.

The only qualification to be made here is that in the two-dimensional case, Samuelson's Axiom implies Houthakker's (for a proof see Rose, *Review of Economic Studies*, 1958, pp. 124–5), so that in this special case the original axiom does establish an ordering, provided that assumptions (a) to (c) below are met.

[2] H. Rose, 1957, *op. cit.*

[3] These results have been proved independently of each other by H. Uzawa, *Proceedings of the First Stanford Symposium on Mathematical Methods in the Social Sciences*, 1960; P. Newman, *Review of Economic Studies*, 1960, pp. 65–77; and by W. M. Gorman in an unpublished paper of December 1956. All these build on the original work of Houthakker, *Economica*, 1950, pp. 159–74. The connection between Uzawa's work and mine was discussed in P. Newman, *Review of Economic Studies*, 1960, pp. 202–5, which also showed by means of a counter-example (due to R. C. Read and myself) that Houthakker's Axiom, or conditions equivalent to it, is *necessary* for a complete ordering (on this point see also Gale, *Economica*, 1960).

The remaining point at issue in these contributions concerns the precise continuity conditions that must be placed on the demand functions in order to ensure these results. Houthakker assumed continuous derivatives, but this can be lightened considerably. I assumed only uniform continuity in prices and income, while both Uzawa and Gorman require something a little stronger (essentially a Lipschitz condition), with respect to income alone. It is possible that my proof is in error on this point, which is of minor but genuine economic relevance.

But not quite, and unfortunately, in this tricky field, a miss is as good as a mile. In order to make further progress, one must assume explicitly that Q is *irreflexive* (*i.e.*, no batch x is indirectly revealed preferred to itself). This is equivalent to saying that if I choose x when x and y are available, and y when y and z are available, then I must not choose z when x and z are available. This natural generalisation of Samuelson's Axiom is due to Houthakker, and seems a very reasonable extension of it. As Samuelson remarked soon after Houthakker's paper appeared, if people obey his axiom, then they are also likely to obey Houthakker's; the converse necessarily holds, since the former axiom is a special case of the latter.

With the help of this last axiom, and the assumptions (*a*) to (*c*) listed above, it is possible to prove that all the points on the curve through x are not related to x (either way) by the relation Q. All such points can, however, be shown to be *equivalent* to x, in the sense of formal logic.[1] The consumer's market behaviour would never, in any circumstances, "reveal" these points to be better or worse than x; but they may well *be* better or worse than x in the *ordinal preference* sense. Whether the consumer has a weak or a strong *ordinal* preference ordering, there would still be (under the assumptions made) "equivalence" curves in the *revealed* preference sense.

If we define yet a third relation "indirectly revealed preferred or equivalent to," then our results show that this relation *does* establish a complete (weak) ordering of the commodity space; but, again, it does not follow without further assumption that this ordering is representable by a continuous "revealed preference" indicator.[2]

5. It is therefore clear that Mr. Brownlie's statement, quoted at the beginning of Section 3 above, in one sense requires too much, and in another sense not nearly enough. It requires too much because Samuelson's Axiom, which is pretty well all that we need for the substitution theorem, imposes no strong ordering on the possible choices, and consistency only in a very restricted sense; while it requires too little in that if a complete ordering of either kind is to be established, we need several assumptions additional to Samuelson's Axiom.

PETER NEWMAN

University College of the West Indies,
Jamaica.

[1] An equivalence relation is defined to be one which is reflexive, symmetric and transitive.

[2] This latter point has been stressed by Uzawa, in a note which is to appear in the *Review of Economic Studies*.

A NOTE ON THE RATE OF INTEREST AND THE VALUE OF ASSETS [1]

In the accompanying figure the rate of interest is measured along the vertical axis, while the value of a given stock of assets is measured along the horizontal axis. *ON* measures the money stock, and the distance between the *M* curve and the *A* curve measures the value, at each rate of interest, of the given stock of assets other than money. It is clear that the value of the assets [2] will be greater if the rate of interest is lower, since the value of an asset is obtained by discounting the expected future yield from which its value springs, and the lower the rate of interest, the less of this value will be lost in the process of discounting. But can we say any more about the relationship of this value and the rate of interest?

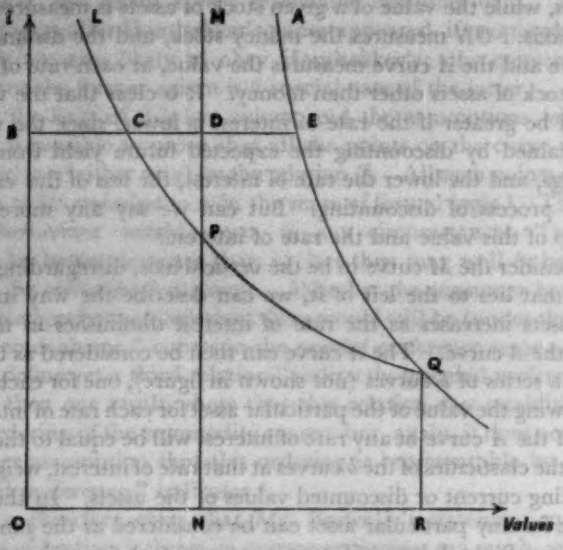
If we consider the *M* curve to be the vertical axis, disregarding the part of the figure that lies to the left of it, we can describe the way in which the value of assets increases as the rate of interest diminishes in terms of the *elasticity* of the *A* curve. The *A* curve can then be considered as the horizontal sum of a series of *b* curves (not shown in figure), one for each asset, each *b* curve showing the value of the particular asset for each rate of interest. The elasticity of the *A* curve at any rate of interest will be equal to the arithmetic average of the elasticities of the *b* curves at that rate of interest, weighted by the corresponding current or discounted values of the assets. In the same way the *b* curve for any particular asset can be considered as the sum of a series of *z* curves, one for each item of future income or each future income payment that the asset is expected to yield at a particular future date. From the shape and distribution of these *z* curves (not shown in the figure) we can build up the *b* curves and then the *A* curve, and if we know something about the former we may be able to discover something about the shape of the latter.

The shape of any *z* curve is given if we know the *size* of the future income payment to which it refers and the *time* at which this payment is expected to accrue; from these two we can calculate the present (discounted) value for each rate of interest. Changes in the size of the future income payment would change all the abscissæ of the curve in the same proportion, moving the curve "iso-elastically." The elasticity of the *z* curve, at each rate of interest, is therefore uniquely determined by the date of the payment alone. Given the date of the payment, the greater the rate of interest, the more

[1] This note was originally written as an appendix to my article "Alternative Formulations of the Theory of Interest," published in the Economic Journal in June 1937 and reprinted in *Essays in Economic Analysis* (Macmillan, 1953) (where the figure appears as Fig. 3). It was apparently never submitted for publication. It is now published with some slight editing as a result of my discovering the manuscript among my papers while preparing to enjoy a fellowship at the Center for Advanced Study in the Behavioral Sciences at Stanford, California.

[2] Throughout the rest of this note assets stand for assets other than money.

is the present value affected by any change in the rate of interest, and the change in present value is exactly in proportion to the change in the rate of interest. In other words, the elasticity of each z curve diminishes as the rate of interest falls, and in the same proportion as the fall in the rate of interest, reaching zero when the rate of interest reaches zero.[1]



In exactly the same way, given the rate of interest, the farther in the future is the date of the payment, the more is the present value affected by any change in the rate of interest and the greater is the elasticity, and this increase will also be exactly in proportion to the postponement of the payment.

This is because a postponement of the date of the payment is analytically equivalent to an increase of the (instantaneous) rate of interest in the same proportion. Either change would reduce the present value of the future payment in the same degree. The analytical equivalence becomes transparent if we take the case of an increase in the rate of interest and reduce the unit period in the same proportion as the rate of interest is increased. We then have exactly as many more periods as in the case of the postponement of the date of payment with the same interest or discount rate per period as before. Alternatively, we could take the case of a postponement of the payment and increase the unit period in the same proportion as the date of

[1] The z curves will be of the form $z = ae^{-it}$, where z is the present value, a is the future income payment, i is the instantaneous rate of interest, t is the time distance of the payment in the future and e is the "natural" logarithmic base.

the payment is postponed. We then have no change in the number of periods but an (instantaneous) rate of interest per new period raised exactly in proportion to the postponement of the date of the income payment.

The *b* curve showing the values of an asset expected to give rise to several income payments at different dates in the future will consist of the horizontal sum of the several *z* curves corresponding to these expected future income payments. Although each separate *z* curve shows a declining elasticity, it does not follow that the *b* curve will do the same.

In the first place a change in the rate of interest may cause some assets to be substituted for others, so that the values of the future income payments on which the *z* curves are built will be changed. But wherever this happens there will always be movements in opposite directions, with a displaced asset decreasing in value while the value of the displacing asset increases. Since we are interested only in the final summation of all the *z* and *b* curves in the *A* curve, we may disregard this complication.

In the second place, as the rate of interest falls, the weights of the *z* curves with greater elasticities corresponding to more distant yields must increase *more than proportionately* because their greater elasticities reflect a greater increase in their present values from the fall in the rate of interest. This change in weights may be sufficient to offset the diminution in the elasticity of each of the *z* curves as the rate of interest is reduced.

Where an asset is expected to produce equal income payments at regular periods for ever, the shifting in the weights in favour of the more elastic *z* curves, corresponding to more remote income payments, is exactly sufficient to offset the decline in the elasticity of each *z* curve. In that case, as can more easily be shown in a more direct fashion, the value of the asset moves in exactly inverse ratio to the rate of interest, and the elasticity of the *b* curve is equal to unity throughout its length.

If we suppose that there is a myopia in the evaluation of future incomes, so that equal incomes in the more distant future are given less and less weight (or, more simply, that incomes accruing after some point in the future lie beyond a horizon and are not counted at all), it becomes much more difficult for the diminishing elasticity of the *z* curves to be offset by the high elasticities of the *z* curves of the very distant income payments. The influence of the latter is curbed by the lower (or zero) weights given to the income payment, as well as by the exponential increase in their discounting with their distance.

At high rates of interests it is still possible for *b* curves to have a high elasticity. Income payments that are sufficiently far in the future to be sufficiently subject to discounting to make their present values very elastic with respect to changes in the rate of interest, may still be sufficiently free from myopia to retain enough weight to be able to confer a high elasticity to the *a* curve. But at a lower interest rate an income payment has to be proportionately farther in the future for its *z* curve to have the same elasticity.

It then becomes more and more subject to myopia, or the danger of falling beyond the horizon, so that its influence is attenuated or lost.

Even if we deny myopia as well as the limiting "horizon," an asset that is expected to yield a constant income for ever will have a *b* curve with a constant elasticity of unity. If we allow our horizon to cut off *any part* even of the most remote future, the *b* curve will be inelastic and will show a declining elasticity as the rate of interest falls; and the same will be true for any asset yielding a constant income that is expected to come to an end some time in the future. It is only an asset yielding a *rising* income that can have a *b* curve with an elasticity greater than unity, and then only if the bulk of the expected future income, even after discounting, lies beyond that rather distant point in the future where the discounting becomes heavy enough to make the present value of the asset vary more than in proportion to changes in the rate of interest. As the interest rate is reduced the critical point moves farther into the future, so that this condition is less and less likely to be satisfied by any asset. We can therefore say that there is a very strong presumption that the *b* curves have elasticities that are less than unity and are lower for lower rates of interest.

In adding the *b* curves for the different assets to get the *A* curve of our figure showing the values of all the assets together (other than money) the very strong presumption that the elasticities of the *b* curves are low remains in the form of a very strong presumption that the elasticity of the *A* curve is low for ordinary rates of interest. The very strong presumption that the elasticities of the *b* curves are falling cannot as safely be transferred to the *A* curve because of the possibility that a decline of the rate of interest may sufficiently increase the weights of the relatively more elastic *b* curves so to raise the average. But the considerations of myopia and of the "horizon," and the frequency of assets with finite lives, can be applied again at this stage of the argument in exactly the same way. We thus retain a very strong presumption that the *A* curve is inelastic and a strong presumption that its elasticity diminishes with the rate of interest.

This analysis of the behaviour of the *A* curve with respect to changes in the rate of interest becomes significant when we contrast it with the behaviour of the *L* curve in the figure, which shows (in its distance from the vertical axis *Oi*) how much of their total wealth (including money) people wish to hold in the form of money. At very high rates of interest people will want to hold very little money above the minimum that is necessary for carrying out transactions given the technical and institutional environment. There will be very little consideration of the rate of interest, and the elasticity of the *L* curve will be very low. At lower rates of interest money which might be earning interest will be used for providing additional convenience in transactions and the other liquidity benefits. The money essential for the transactions motive diminishes relatively to the money now held for precautionary and speculative motives. These needs for money are much less urgent, so

that in determining how much should be held there will be greater consideration of cost. This cost is none other than the rate of interest foregone when the wealth is held in the form of money. The elasticity of the *L* curve will therefore be higher at a lower rate of interest.

It may be the case—as Keynes has suggested—that this increasing elasticity reaches infinity at some positive rate of interest. But even if this is not so, it seems likely that the *L* curve (which becomes more elastic as the rate of interest falls) will meet the *A* curve (which becomes less elastic as the rate of interest falls) at some positive rate of interest. This is shown at *Q* in our figure. Below *Q* the *L* and the *A* curves coincide indicating the public's wanting to hold *all* their wealth in the form of money.[1] This means that the money authorities will not be able to reduce the rate of interest below *RQ* unless they are prepared to acquire *all* the assets in the economy other than money.

ABBA P. LERNER

Michigan State University,
E. Lansing, Michigan.

[1] They cannot hold more than this, even if they should want to, unless the banking authorities, after having bought up all the non-monetary assets in the economy, allow the public to borrow still more money to hold on the security of the expected future earnings of their non-transferable personal skills, etc.

OVERINVESTMENT DURING PROSPERITY[1]

THIS article is concerned with the prosperity phase of the cycle—that part of the cycle which just precedes the upper turning-point. There are two problem areas we shall focus on: the period of the boom, and "overbuilding" of fixed capital in the boom. With respect to the first, we are concerned with the conditions that determine the high level of aggregate demand in weak and strong booms. It is argued that an important influence on aggregate demand is the stock of capital, which necessitates the construction of a dynamic theory of aggregate supply. It is this latter aspect of the present paper which differentiates it from previous studies of the cycle.

The second problem area—overbuilding of fixed capital in the boom—overlaps with the first, but since it is so important in the turning-point (and the subsequent downswing), it is treated separately. We shall define overinvestment within the tradition of Aftalion and Keynes.[2] In general, overinvestment in the boom is a phenomenon of excess fixed capital in the sense that the investment projects begun $n(n = 1, 2, \ldots w)$ periods ago will be executed in a period when demand is insufficient to operate the plant and equipment at minimum average costs. Thus the economy generates a stock of capital goods *in excess of aggregate demand—i.e.*, demand for consumer goods and investment goods. This definition is more general than the Austrian definition of overinvestment, in which the capital goods sector is augmented beyond the "true" needs of the consumer goods sector; for, by our definition, overbuilding of fixed capital in the consumer and investment goods sectors can occur.

By recognising that investment projects begun n periods ago affect overinvestment, a "lead time" factor, the construction period of capital equipment, is implied. The lead time is a period which elapses between the decision to invest and the actual execution of the completed project. It is a naïve, operational measure for the neo-classical gestation period.[3]

Perhaps the most important purpose of the paper is to understand the relationship between excess capital and the period of the boom. (We assume throughout that the amplitude and period of the subsequent depression is an increasing function of the overinvestment in the preceding boom.) The way we shall approach this problem involves three steps: (1) isolate certain common factors, σ_n, that affect both the period of the boom, T, and

[1] The author wishes to thank Professors Lawrence Klein, Adolph Lowe, Michio Morishima, Hans Neisser and Mrs. Mary Hamilton for their comments. The computations in this paper were supported by the University of Pennsylvania Computer Center and the National Science Foundation.

[2] A. Aftalion, *Les Crises Periodiques de Surproduction* (Reviere, 1913), Vol. II, p. 372. J. M. Keynes, *The General Theory of Employment, Interest and Money* (Macmillan, 1936), p. 321.

[3] Actual lead times for various industries have been estimated. See, T. Mayer and S. Sonenblum, "Lead Times for Fixed Investment," *The Review of Economics and Statistics*, August 1955.

overinvestment in the boom, O; (2) then, establish the relationship between changes in these factors and changes in the period of the boom, on the one hand, and changes in the level of overinvestment, on the other; (3) assess the similarity between these changes *vis-à-vis* the period and overinvestment. Symbolically, we shall try to define: $T = T(\sigma_i)$ and $O = O(\sigma_i)$; then, $dT/d\sigma_i$ and $dO/d\sigma_i$ (where $i = 1, 2, \ldots n$ can be deduced). The third step involves a comparison between $dT/d\sigma_i$ and $dO/d\sigma_i$ for each i.[1]

The theory discussed in the present paper attempts to redress certain difficulties involved in other models. It thus permits a partial elucidation of the following problems: The relation between employment and capacity utilisation at various points during the boom, and especially at the upper turning-point; the effect of " plant bottlenecks " on the time path of aggregate supply and demand and total capital stock; the behaviour of aggregate demand in the inflation zone, *i.e.*, between the time points when it encounters the employment ceiling from below and from above; and the relation between strong and weak booms. The attempt to handle these problems as well as the overinvestment problem generalises the present theory of the boom over previous ones, although the opportunity costs of doing so involves a considerable loss of elegance. However, in attempting a more general theory, new hypotheses are derived, some of which are testable with existing data.

Our procedure will be the following: Section I outlines the model briefly and its operation is illustrated; this outline is continued into Section II, where the paternity of the relations embedded in the model is discussed along with a critical analysis of certain contemporary theories of the cycle where they are relevant to the present construction (the reader interested only in the results of the paper can skip this section); Section III derives hypotheses relevant to overinvestment and the period of the boom.

I. An Outline of the Model

The questions in which we are interested, involving the length of the boom and overinvestment in the boom, require for their answers the construction of a special analog of the economy; special, in the sense that the overinvestment phenomenon can be isolated. The model of the economy recognises an aggregate money demand function (x_t) and an aggregate supply function(y_t). The demand function includes consumption demand plus dynamic investment demand relations.

The supply function relates aggregate output to the existing capital stock in the economy and the level of demand, the latter functioning as a signal to entrepreneurs to vary their output. Since the existing capital stock is composed of last period's capital stock plus the net addition to stock in the current period, the supply function includes actual investment—*i.e.*, the

[1] The functions of T and O cannot be defined analytically, although numerical approximations yield the $dT/d\sigma_i$ and $dO/d\sigma_i$.

actual real addition to stock which was planned and ordered $t - w$ periods back, where w is the construction time for fixed investment.

A solution of the dynamic demand and supply functions generates the time profiles of aggregate demand, supply *and* capital stock. Knowing the time profile of capital stock enables us to form an overinvestment ratio.

These variables are not independent of each other; it is impossible for demand to change without affecting the level of output, and vice versa. In Keynesian fashion, the level of demand at time t depends on the level of consumer and investor demand at t. We shall utilise the Keynesian consumption function which expresses consumer demand as a function of real income:

$$(1) \qquad c_t = ay_t$$

where a is the marginal propensity to consume, which will be constant throughout the analysis. All variables are written relative to their respective equilibrium values; *e.g.*, $y_t = Y_t/\bar{Y}_t$, where Y_t is actual output at t and $\bar{Y}_t$ is the equilibrium output at t.

There are two components of investment demand; induced investment, I_t and autonomous investment, A_t—both are time dependent. A general expression for induced investment, one that would account for investment decision over the entire range of the marginal-cost curve (starting at minimum average costs and moving to the right along the output axis), would have the change in the level of *demand* bringing forth increases in capacity:

$$(2) \qquad I_t = v(g_1 x_{t-1} - g_2 x_{t-2})$$

where v represents the amount of capital which the entrepreneur is induced to demand as a result of a change in the demand which faces him, $g_1 = \frac{1}{1+g}$, $g_2 = \frac{1}{(1+g)^2}$ and g is the natural rate of growth of the economy. Autonomous investment, that part of total investment that is not structured by the intensive utilisation of existing capacity, is assumed to be increasing at a steady rate through time:

$$(3) \qquad A_t = A_0 e^{gt}$$

Since we focus on relative values,

$$(4) \qquad A = A_t/\bar{Y}_t = A_0/Y_0$$

which assumes that the relative change in autonomous investment is constant. The difference, $A_0 - Y_0$ is determined by the consumption and investment coefficients in the system as expressed in the supermultiplier.[1]

The aggregate supply function approximates the marginal-cost function of a firm operating in pure competition—it slopes upward to the right and

[1] J. R. Hicks, *The Trade Cycle* (1950), pp. 183–4. The supermultiplier will be neglected in our analysis, since it primarily embodies the growth mechanism, which we assume has a neutral effect on our economic relations in the boom period.

becomes inelastic at a point determined by the stock of capital. Thus, the supply of goods and services in an economy is a function of the capital stock and the development of demand. For a group of periods in which demand is allowed to vary but the capital stock is held constant (for certain lead times, this is possible; see below), the aggregate supply function approximates the curve in Fig. 1. The $\bar{y}$ output is the equilibrium level indicating the point where average costs are a minimum, and y^* represents the output at which the supply curve becomes completely inelastic with respect to demand changes (or price changes in pure competition). We shall refer to y^* as the "plant ceiling." The curve in Fig. 1 may be thought to be the aggregate of all firm marginal-cost curves where cost differences are eliminated by quasi rents. Assuming neutral technological change, an increase in the aggregate

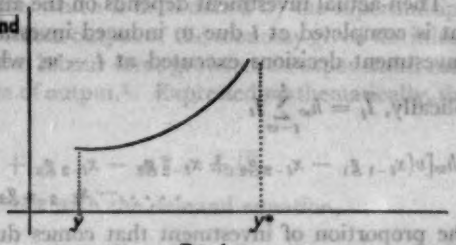


FIG. 1

supply curve generates a cost curve which has the same structure as one to the left along the output axis.

The distance, $y^* - \bar{y}$, measured in output units represents the increase in output with respect to demand changes, holding capital constant; it is largely dependent on the economy's technology. In analyses of oligopoly, however, the "Distance," $y^* - \bar{y}$, is expressed in terms of reserve capacity or "capacity stages." We shall take the Distance as given.

Symbolically, aggregate supply in real terms may be expressed as

$$y_t = v' k_t[\theta(x_t)] \tag{5}$$

where k_t is the real capital stock, v' is the proportion of output to capital stock at the plant ceiling and $\theta(x_t)$ is a function of output which is discussed below.

Although k_t is a stock, v' transforms it into a flow, representing the maximum output that can be produced when the existing capital stock is utilised at its most intensive level—*i.e.*, when supply becomes inelastic with respect to demand (or price). If v is the proportion of output obtained from the optimum use of the existing stock, then, $v > 1/v'$. Thus, $v' - 1/v$ measures the Distance, and the larger v' is, the larger is the Distance.

But v' changes as demand changes due to the operator $\theta(x_t)$. As money demand increases, v' varies from $v'\{1 - [B + bx_t]^{-1}\}$ to v'. That is

$$\theta(x_t) = 1 - [B + bx_t]^{-1} \tag{6}$$

is an operator which signals entrepreneurs to increase output due to a rise in money demand.[1] This generates the asymptote $v'k_t$, the plant ceiling,[2] as a strongly increasing function of demand. The coefficient b in (6) indicates the economy's readiness to vary output in response to changes in demand. It is interpreted as a weighted average of the Metzler "speed of adjustment" coefficients. B represents an aggregate demand floor, such that entrepreneurs can always rely on a minimum level of demand for their product. Thus (6) implies that entrepreneurs react to a given level of demand within the time period.

It is clear that x_t/y_t is equal to the price level. Therefore, the price level through time is determined by the time profiles of output and money demand.

Consider the identity, $k_t = k_{t-1} + \bar{I}_t$, where $\bar{I}_t$ is the actual addition to capacity at t. Then actual investment depends on the amount of plant and equipment that is completed at t due to induced investment decisions and autonomous investment decisions executed at $t - w$, where w is the lead time. Symbolically, $\bar{I}_t = h_w \sum_{t-w}^{t} I_t$

$$(7)\quad \bar{I}_t = h_w[v(x_{t-1}g_1 - x_{t-2}g_2 + x_{t-2}g_2 - x_{t-3}g_3 + \ldots . \\ \ldots . - x_{t-2-w}g_{2+w}) + A_0/Y_0 e^{gw}],$$

where h_w is the proportion of investment that comes due at t which was started at $t - w$, $t - (w + 1)$, $t - (w + 2)$, . . . We are making the simplifying assumption that w is continuous over the investment horizon. Thus a constant proportion of the investment plan executed at $t-w$ comes due at t.[3]

[1] This real supply function is not a production function; it is the result of maximising a profit or utility relation which is constrained by dynamic production functions.

[2] Alternative operators which yielded the desired shape of the marginal cost curve were tried; the present one seems to be optimal, since it converges to the asymptote at a desirable rate. Also, the use of an alternative operator did not alter the results in a qualitative manner.

[3] If we assumed otherwise, the equation system would be unmanageable. If the period of measurement is taken to be, say, six months, the present assumption does not offend reality significantly. However, we should postulate h_w as in Fig. 2:

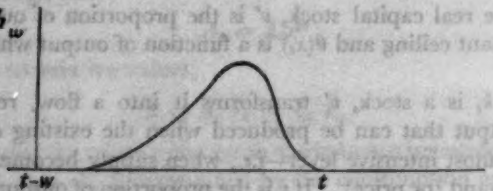


FIG. 2

which intuitively approximates the time and shape of plant and equipment installation. In this case, the investment plan begun at $t - w$ generates no capacity until several periods elapse, and then becomes useable all at once. The construction period represented in Fig. 2 was suggested by J. M. Keynes, *A Treatise on Money* (London), Vol. II, pp. 223–4.

By deflating the right-hand side of (7) by a price index of capital goods we can derive a real,

By substitution, (5) becomes

$$(8)\quad y_t = v'\left\{k_{t-1} + h_w\left[v\sum_{t-w}^{t} I_t + A_0/\bar{Y}_0 e^{w}\right]\right\}\{1 - [B + bx_t]^{-1}\}$$

The completion of the model requires the employment ceiling mechanism. It is assumed that the employment ceiling is imposed from outside the system —*i.e.*, we do not consider the labour force as endogenous to the model. Further, we assume that at any moment we know the level of employment ceiling, L, there is a maximum output which can be associated with the existing labour force. It is not necessary that this employment ceiling be the same as the plant ceiling, and vice versa. To recall, the equilibrium path has the same rate of growth as the autonomous investment path, but is higher by a multiple, which is determined by the supermultiplier. We can determine the maximum output of the economy given the initial labour force if we assume that the labour force grows at an exponential rate equal to the natural growth rate of output.[1] Expressed mathematically, the employment ceiling is

$$(9)\quad y_t^* = L_0/\bar{Y}_0$$

This relation, together with the demand equation,

$$(10)\quad x_t = ay_t + v[x_{t-1}g_1 - x_{t-2}g_2] + A_0/\bar{Y}_0$$

and the supply equation,

$$(8)\quad y_t = v'\left\{k_{t-1} + h_w\left[v\sum_{t-w}^{t} I_t + A_0/\bar{Y}_0 e^{w}\right]\right\}\{1 - [B + bx_t]^{-1}\}$$

completes the system.

The method of solution of the model will be to solve the demand and output equations simultaneously. Thus a level of aggregate demand satisfying equation (1) must be able to satisfy the aggregate output equation, also. This assumes that aggregate demand and aggregate supply are not in equilibrium over the course of the boom.

These dynamic mechanisms may be illustrated as follows. Suppose that the lead time requires two periods, and let us begin from a position of

executed investment function representing the actual addition to capacity. Yet this is not correct. For, suppose that an entrepreneur contracts at time t in t prices for an addition to his plant; if prices rise between t and the time the addition to his plant is actually executed—*i.e.*, at $t + w -$, then the entrepreneur must increase his outlay to the contractor due to the rise in the price in capital goods in order to realise the same physical amount of investment he ordered at t. Therefore we must also inflate the right-hand side of (7) by the price index of capital goods; there are two opposing price forces acting on the distributed lag of real investment. This yields relation (7).

[1] There is some reason to assume that the employment ceiling will proceed at the same rate as the equilibrium path, but there are qualifications. See Hicks, *op. cit.*, pp. 122–3. If neutral technical change occurs so that the capital–output ratio is constant at successive minimum average cost points, it follows that the maximum output of the existing labour force is a constant multiple of the equilibrium output at each t.

economy equilibrium, *i.e.*, at minimum average costs. Given a demand increase, an investment decision will be generated at $t + 2$, which will be executed at $t + 4$. Further, suppose that the Distance is sufficiently large so that subsequent demand increases do not permit an output encounter with the plant ceiling before the investment executed at $t + 4$ moves the plant ceiling to the right along the output axis. If further demand increments are such as to allow the subsequent investment decisions to be executed—each time moving the plant ceiling to the right—then the encounter with the plant ceiling can be avoided. If, in the opposite case, the demand increments are sufficiently large, given the lead time and the Distance, then output encounters the plant ceiling, and remains there until the investment generated by the demand increments is executed, and the ceiling is moved to the right.

Even though output encounters a plant ceiling, the level of demand may still increase, since induced investment is a function of demand. However, the rate of consumer demand falls at this point—what we shall call the "*H* effect" (see Section II)—which in turn reduces the rate of increase of aggregate demand, until the expansion in capacity allows an increase in output. (Recall, consumption demand depends on real income in the Keynesian fashion.) The time profile of output and capital stock can proceed by either bumping along plant ceilings or avoiding them as the case may be. The avoidance of plant ceilings is a function of the rate of demand increase, the Distance and the lead time. But whether output encounters a plant ceiling or not, there is one bottleneck it cannot avoid: Keynesian full employment. This is encountered when demand carries output up to a point where the pool of involuntarily unemployed workers becomes exhausted. Here, output can only creep along the final ceiling, sustained there only by further demand increases.

The behaviour of the level of demand is significant in this range, for it may rise above an employment ceiling. However, the rate of increase of demand falls, since consumption can only increase at the employment ceiling at the rate of aggregate output, which is constant. This reduction in the rate of increase of demand can be sufficient to dampen induced investment, and a turning-point ensues.

The possibility of demand rising above the level of output (given certain values for the coefficients) is provided by the simultaneous solution of the system. Thus, the inflation phenomenon is taken into account; demand rising above the output ceiling into a pure price range.

II. The Model

In this section the model is further spelled out and linked to contemporary business-cycle literature. The reader primarily interested in the performance of the model can pass over this section and proceed to the next, where the results are set out.

Demand

On the demand side, it is necessary to justify the use of the comparatively simple Keynesian consumption function. The reason that a more complicated function of the Modigiliani–Duesenberry type was not used is that we are focusing on a phase of the cycle where the " ratchet effect " remains approximately constant throughout. That is, if the growth mechanism operates to increase one boom's output above the previous boom's output, then the ratchet effect washes out. The ratchet effect may tend to operate more strongly in weak booms. In any case, it is on the downswing that the ratchet effect may be said to have the strongest effect.[1]

The two components of investment demand require a lengthier disquisition. With respect to induced investment we can begin with the Hicksian analysis. The firm is operating at minimum average costs, and a demand increase moves output to the right along the output axis. Under the assumption of static expectations the entrepreneur is expected to feel that the existing plant is no longer appropriate. For the capital is being used at more than its optimum intensity and " therefore increasing its effective rate of depreciation." [2] In this case an increase in *output* may serve to induce investment, and Hicks's accelerator is adequate. But when demand elicits output in the range of the inelastic part of the supply curve the output variable can no longer serve to generate the induced investment component. The reason for this is that the entrepreneur, focusing on demand, is still under the same compulsion to increase capacity, even though output cannot be expanded at the point where marginal costs become completely inelastic —*i.e.*, when a plant ceiling is reached.[3] Therefore a more general expression of induced investment, one that would account for investment decisions over the entire range of the marginal-cost curve, would have the change in the level of demand bringing forth increases in capacity: $I_t = v[x_{t-1}g_1 - x_{t-2}g_2]$. This investment function can be generalized by including a distributive lag pattern; however, the analytic compensation is not great. We should note that the paternity of our induced investment function goes back to the traditional accelerator theorists, who framed induced investment in terms of changes in *demand*, not output.[4]

On the autonomous side of investment we assume that each autonomous increase in capacity does not generate a further increase in demand which

[1] The ratchet effect is included in Arthur Smithies' model, " Economic Fluctuations and Growth," *Econometrica*, January 1957, pp. 1–52.

[2] Hicks, *op. cit.*, pp. 39–40.

[3] This basic difficulty with the Hicksian construction was pointed out by H. Neisser, " Critical Notes on the Accelerator Principle," *Quarterly Journal of Economics*, May 1954; and J. Sargent, " The Supply Factor in the Theory of the Cycle," Economic Journal, December 1956.

[4] J. M. Clark, " Business Acceleration and the Law of Demand," *Journal of Political Economy*, March 1917. The Smithies investment demand function (*op. cit.*), which relates investment to the level of output (as a proxy for profit) is limited in the same way as an output accelerator is, *i.e.*, by not representing investment demand in the pure price realm.

would be used to induce further investment. This can be accomplished in our model by defining: $A_t = \bar{A}_t - \bar{A}_{t-1}$, where $\bar{A}_t$ is total autonomous investment in t. This avoids an error in the Hicksian construction.[1]

The Equilibrium Path—A Comment

Before proceeding to the supply side of the theory, it is necessary to be clear about the meaning of equilibrium in the economy. In the first place, we are certain that the presence of induced investment is inconsistent with the equilibrium position of the firm in the long run, for induced investment presupposes that the firm operates to the right of minimum average costs. This implies that only increases in capacity resulting from autonomous sources would give rise to equilibrium through time, for only then could the firm operate at successive minimum average cost points. In this interpretation of equilibrium, which differs from the original Hicksian one,[2] the phenomenon of induced investment is always identified with points of disequilibria for the firm; there is only one moving equilibrium rate of growth associated with one time profile of autonomous investment.

Supply

The output equation, $y_t = v'k_t[\theta(x_t)]$, includes a demand term, the accelerator relation and capital stock. The capital output ratio, v, is constant and yet changes in the rate of utilisation of existing plant change the utilised capital per unit of output; that is, v' varies according to the demand operator $\theta(x_t)$. By allowing v' to vary on the supply side we have avoided a basic criticism of the accelerator.[3]

The Period in Calendar Time

It is possible to identify in calendar time the analytical time periods discussed above. Thus, consider an initial equilibrium point at minimum average costs. An increase in demand moves actual output to the right of equilibrium, and assuming static expectations, investment demand is induced. That is, an increase in plant and equipment is contracted for in order to bring the firm to another equilibrium level of output. The time required to reach the new equilibrium is precisely the lead time. Therefore, since the lead time is observable in calendar units, the number of periods in calendar units required to achieve the new equilibrium may be known, also; *e.g.*, if the lead time were fifteen months a convenient period breakdown would be five quarters. In this way we could measure the results of our models in calendar time.

[1] See H. Neisser, *op. cit.*, and H. Rose, "Demand, Supply and the Price Level in Macroeconomics," *The Review of Economic Studies*, 1953.

[2] See Hicks, *op. cit.*, p. 64.

[3] R. S. Eckaus, "The Acceleration Principle Reconsidered," *Quarterly Journal of Economics*, May 1953, suggests that only a variable accelerator relation is valid.

Professor Morishima

We should mention that two elements of the present model appear to be used in the same sense by Professor Michio Morishima. He employs the utilisation of capital stock variable as well as a lead time concept. His model is more general than the one presented here in that it includes a monetary sector. However, the details of his construction are unknown to economists who do not read Japanese.[1]

Inflation and the Solution to the Model

The solution of the system is unique, since we propose to solve the aggregate demand and supply functions simultaneously. This permits aggregate demand to rise above supply in the employment ceiling range into a pure price realm.[2] An equilibrium solution does not have this advantage. Since the Hicksian model equilibrates aggregate supply and demand, it suffers a severe breakdown at the employment ceiling. That is, there is no reason in the Hicksian analysis why demand should not shoot above the ceiling into a pure price realm, even though the rate of increase of output is halted. Professor Hicks recognises the difficulty, but maintains " that the retardation in the growth of output (in industries which encounter the employment ceiling) slows up the demand for the products of other industries." [3] This retardation in output which halts the demand at the employment ceiling by the lagged reduction in demand for the products of industries not encountering the ceiling can be called the *H* effect (since Harrod, Haberler and Hicks give it as a crucial reason for the downturn).[4]

The *H* effect is built into the present model by relating consumption to real income. Thus, it is assumed that the increase in the consumer-goods sector is halted at the ceiling relative to the investment-goods sector. At this point a complete analysis requires a multi-sector model.[5]

III. The Theoretical Implications of the Model

We are concerned with two overlapping aspects of weak and strong booms—the length of the boom and the incidence of overinvestment in the boom. Our problem is to indicate: (1) how the length of the boom is affected by economic and technological forces expressed in the coefficients of the model; (2) how overinvestment is affected by the same economic and technological forces; and (3) how overinvestment affects the length of the

[1] See, S. Fujino, " A Theory of Economic Fluctuations in a Capitalist Economy—Economics of Cycles and Growth, by Michio Morishima " (a review article), *Econometrica*, January 1957.

[2] The Hicks–Sargent model uses an equilibrium solution. The Smithies model is solved simultaneously.

[3] Hicks, *op. cit.*, p. 99, footnote.

[4] R. Harrod, *The Trade Cycle* (1936), p. 165; G. Haberler, *Prosperity and Depression* (1941), pp. 368–9; and Hicks, *op. cit.*, p. 99, footnote.

[5] A sectoral analysis of the strong boom is presented in M. Brown, *Studies in Multi-sectoral Dynamics*, unpublished Ph.D. dissertation, The Graduate Faculty, New School, 1956.

boom. The last part of the problem is complex, since it is not entirely clear that the same conditions which lengthen the boom also contribute to over-investment. An untangling of supply and demand forces will cast light on the problem.

The relationships discussed below have been derived by numerically approximating the model.[1] Keeping the initial conditions constant, the parameters of the model are varied in a systematic manner, and the resultant time profiles of aggregate demand, aggregate supply and the capital stock are compared. It should be noted that although it is impossible to obtain an analytical solution by this method, the gross outlines of the solution can be estimated with some confidence. With this in mind, we can derive certain theoretical relationships between the time paths of aggregate supply and demand and the capital stock, on the one hand, and the parameters of the system, on the other. Yet, the caveat must be entered, since we can never be sure, using numerical approximations, that our choice of the values for the parameters was not fortuitous.[2]

Before discussing the period of the boom, it is well to mention that for all combinations of values of the parameters, cycles are generated in aggregate demand, supply and the capital stock. In the case of weak values, this would be expected, since the distributed lags tend to infuse a cyclical character to our model. Non-stationary cycles resulting from strong values confirm the *H* effect noted above. In other words, for strong values, the system always encounters a ceiling, and the ceiling encounter foretells a downturn in every case.

A. The Period of the Boom

In this section relationships between the parameters of the model and the period of the strong boom are set out. We shall start the model on the upswing from an equilibrium point—*i.e.*, the economy, *qua* firm, is operating at minimum average costs. Demand is then assumed to increase due to an increase in autonomous investment, and output moves to the right along the supply function. At the end of the boom, when aggregate supply begins to fall, we assume that the boom period is terminated. If, however, supply falls and then increases before encountering the equilibrium path from above this will not constitute a terminus of the boom—this allows the economy to "bump" along the boom phase. Thus the length of the boom, measured in periods, maps the range from initial equilibrium to the point where supply decreases with the intention of cutting the equilibrium output from above.

1. The first results involve changes in the capital-output ratio, v, holding

[1] The eigenvalues were roughly defined by approximating the model with fifty-eight combinations of parameters.

[2] The hypotheses relating to the lead time parameter can, however, be corroborated by an exact solution to the model. These parameters generate distributed lags on the supply side of the economy; and it is possible to linearise the model while retaining the distributed lag characteristic. The exact solution is possible provided that the distributed lag is no longer than two periods.

all other parameters constant. A change in the capital–output ratio signifies a change in the structure of the economic system as represented in our model. This structural change can result from a technological change or a change in expectations on the part of entrepreneurs. (We are assuming that the relative prices of consumer and investment goods are constant.) Thus, as the boom progresses through time we shall examine the consequences of the increase in v (for any reason) on the length of the boom. Recall that this coefficient appears in the demand and supply structural equations.

The average number of periods elapsing during the boom for values of v between 0·8 and 2·5 are shown in the following table:

The accelerator, v.	Average duration.
0·8	20
1·4	9
2·0	4
2·5	3

There is considerable variability in the length of the boom, but when the v coefficient is large the length of the boom becomes stable.[1]

In all cases, as v increases, the length of the boom tends to be reduced. This is not surprising in the Hicksian strong boom, where output encounters an employment ceiling. For here, an increase in the capital–output ratio feeds the demand explosion; if the employment ceiling is fixed, then when output encounters it the rate of increase of real income falls, and so does consumption on the aggregate demand side. This, in turn, reduces the rate of total demand which will cut the accelerator effect off after a lag. This results in a decrease in supply, again after a lag due to the lead time, and the boom has ended. Thus Hicks was correct on two counts: an increase in v tends to reduce the length of the boom, and an encounter with an employment ceiling heralds the end of the boom.[2]

2. Entrepreneurial reactions to demand are likely to change over the course of the boom. That is, entrepreneurs may increase output to a greater extent per unit of demand as the boom progresses. It is reasonable to expect that any increase in this type of reaction, *i.e.*, an increase in b, *cet. par.*, hastens the end of both weak and strong booms. The average number of periods elapsing during the boom for selected values of b are shown below:

The reaction coefficient, b.	Average duration.
0·5	6
1·0	5
1·5	4

[1] Professor Hicks concluded tentatively that the length of the boom does not vary enormously with the v coefficient (*op. cit.*, p. 115). This is at variance with our result. The reason for this may be that his intervals between values for v were not large enough.

[2] Hicks, *ibid.*

It is apparent that the economy, as represented in our model, is somewhat insensitive to changes in the b coefficient.

3. A technological factor that affects the length of the boom is the Distance. Consider the following table, which presents the average number of periods elapsing during the boom for selected values of v':

The Distance, v'.	Average duration.
$0{\cdot}5v$	11
$0{\cdot}6v$	9
$0{\cdot}75v$	8
$0{\cdot}8v$	6

As the Distance decreases, the boom tends to be prolonged. (It is convenient to measure v' as a fraction of v; thus v' is a monotonically increasing function of v.) This means that it is possible to raise the level of output to a greater extent before encountering a plant ceiling; it is reasonable to expect the boom to be protracted. For, when a plant ceiling is encountered the increase in real income is halted until the plant ceiling is moved to the right by the installation of new capital; since real income is halted, so is consumer demand and total demand is dampened. Finally, the employment ceiling may be hit, but only after aggregate supply overcomes the plant ceiling obstacles.

4. The effect of a change in the lead time on the length of the boom is straightforward. Recall that the lead time influences the lag distribution of actual investment on the supply side. Thus, as the lead time increases, for any given investment demand, a smaller proportion of the investment demand becomes executed in each time period. It follows that an increase in the lead time increases the length of the boom, since the time required to encounter the employment ceiling is increased. The following table presents this result:

Lead time.	Average duration.
2 periods	3
3 periods	5
4 periods	6

It may be that the lead time actually increases as the boom progresses. It is a quasi-technological phenomenon influenced by supply conditions. Thus, as capacity becomes pressured at the beginning of the boom, the lead time would probably increase, in this way contributing to a lengthening of the boom, *cet. par.* At the very end of the boom, when excess capacity shows up, one could expect the lead time to decrease, and this would precipitate the end of the boom. Notice that this result conforms to the Austrian conception of the relation between the prosperity phase and the gestation period. Of course, we have arrived at the relationship by a different theoretical route.

B. Overinvestment in the Strong Boom

We have defined overinvestment as a phenomenon of excess capacity generated by the investment project begun w periods ago and executed in a period when demand is insufficient to operate plant and equipment at minimum average cost. Thus, there will be an optimum relation between capital stock and output (and/or demand), *i.e.*, $\bar{k}/\bar{y}$, at the initial equilibrium, and at the end of the boom the capital output ratio, k_t/y_t, should be smaller. If $(k_t/y_t)/(\bar{k}/\bar{y})$ is large at the end of the boom, then a large amount of overinvestment has been generated. We can now examine the effect of various values of the structural parameters on the overinvestment ratio.[1]

1. In all cases overinvestment in the boom is reduced as the capital–output ratio increases. We have fixed the employment ceiling, and for any demand increase the addition to capital will be executed only after a lag which is due to the lead time. The sequence is as follows: the greater the capital–output ratio, the greater will aggregate demand be, the more will capacity be pressured and the sooner will the employment ceiling be encountered. What is involved is that demand is rising too rapidly for capacity to catch up with it. It does not mean that the economy will not have to pay for the increase in the capital–output ratio later on, *i.e.*, on the downswing, for then the investment programs begun in the boom will be ready for instalment, if they are executed at all.

2. Changes in entrepreneurial reaction to demand affect overinvestment in the boom. We find that the overinvestment is an increasing function of b, the entrepreneurial reaction coefficient. The following table presents the average overinvestment for three values of b:

Reaction coefficient b.	The Overinvestment ratio, $(k/y)/(\bar{k}/\bar{y})$.
0·5	1·6
1·0	1·3
1·5	0·9

Since b operates on the demand variable in the output equation, we should expect it to behave the same as demand *vis-à-vis* overinvestment. The explanation for v in the preceding paragraph should hold for b, also.

3. The Distance affects overinvestment in the following way: the larger the Distance, the smaller will overinvestment be. The values presented in the table indicate this:

The Distance, v'.	The overinvestment ratio, $(k/y)/(\bar{k}/\bar{y})$.
$0{\cdot}5v$	2·2
$0{\cdot}6v$	1·7
$0{\cdot}75v$	1·3

[1] Similarly, we could have used $(k_t/x_t)/(\bar{k}/\bar{x})$ as the overinvestment ratio, but the capital–output ratio can be stated in real terms, while the capital–demand ratio is a hybrid. In any case, the capital–output and capital–demand ratios move in the same direction. The overinvestment ratio is invariant under this type of price transformation.

When the Distance is large any given increase in investment demand has more of a chance of being utilised when it is executed.

4. Our model implies that there is an inverse relationship between the lead time and overinvestment in the boom. Consider the following table;

Lead time in calendar periods.	The overinvestment ratio.
2	0·90
3	0·73

As the lead time increases from two to three periods excess capacity in the boom falls 19%. Prolonging the construction period of fixed investment reduces the proportion of investment executed in any given period; thus the addition to capacity will be smaller than if the lead time were long, and consequently total capacity will be more in line with effective demand.

As stated above, the construction period may actually be prolonged in the latter part of the prosperity phase due to supply bottlenecks, etc. The effect of this structural change will probably be a reduction in the rate of overinvestment. We shall return to this point in our policy discussion below.

The Weak Boom

There is no reason to expect the model to behave differently in the weak boom as against the strong boom given changes in the pertinent parameters, since the structural relations remain constant. Substituting weak values for the parameters results in the same relations we discussed above in the strong boom. For example, the combination of a short lead time and large accelerator coefficient leads to the largest build up of capital in the strong as well as the weak boom.

It is clear, then, that policy formulations do not require a distinction between the two types of booms within the context of the forces discussed in this paper. Thus, efforts to prolong the boom and reduce overinvestment will be the same in the strong as in the weak boom.

Concluding Remarks

1. We have found that the focal parameters: the accelerator, the Distance and the entrepreneurial reaction coefficient affect the period of the boom and the amount of overinvestment in the boom in the same way. For instance, an increase in the accelerator reduces the length of the boom and also reduces the amount of overinvestment in the boom. Therefore, there is a direct relationship between the period of the boom and overinvestment *with respect to these three structural parameters.*

2. An increase in the construction period lengthens the period of the boom but reduces the amount of overinvestment in the boom. Thus, with respect to the lead time parameter we can expect the period of the boom and overinvestment to be inversely related.

3. These results have interesting policy implications. Let us agree that

a reasonable aim will be the following: reduce the amplitude of the cycle without discouraging the attainment of a full employment level of output. This requires, *inter alia*, (*a*) a strong boom and (*b*) constraining the excess capacity during the strong boom to a minimum necessary to sustain the boom for as long a period as possible. Can (*a*) and (*b*) be achieved simultaneously—*i.e.*, are they consistent aims? First, to achieve a strong boom, the accelerator must be above a minimum level. If it is below this minimum level it must be raised, say, by a reduction in the interest rate. If it is raised overinvestment is decreased, which is consistent with (*b*), but the boom is shortened, also. Therefore, the aims are inconsistent from the accelerator viewpoint; it follows that the strong boom should be encouraged by a high level of autonomous investment if the accelerator is below the minimum level, since this method will not reduce the period of the boom.

Secondly, we must limit the amount of overinvestment without shortening the boom. The only parameter which will accomplish this (within the context of the present study) is the lead time. Since the lead time will probably increase at the end of the boom due to supply maladjustment, the policy proposal at the minimum is to refrain from any action which will tend to shorten the lead time. That is in order to at least stabilise the construction period of fixed investment, no action (such as credit ease) should be attempted which will eliminate bottlenecks in the investment-goods supply sector—machine tools, plant contractors, etc. At this point in the boom plant ceilings in the investment goods supply should be encouraged. Since this sector is relatively small, the consequent reduction in the rate of increase of output will not produce a large H effect on aggregate demand. Therefore, there is the possibility of sustaining the boom while reducing the aggregate overbuilding of fixed investment.

4. We have concluded that the previous distinction between the weak and strong boom is that the latter achieves full employment while the former does not. Changes in our focal parameters have the same result for both types of booms. Therefore, policy proposals are the same for weak and strong booms.

5. Even though we have considered how the parameters vary over the course of the boom, some of the results may be applied to an interpretation of intercyclical variations. For in the latter case, the parameters are decidely not invariant.

6. Finally, we must repeat the caveat that the hypotheses presented above were derived by numerical approximations, and thus they are to be considered special cases. Although the results are tentative, it is hoped that the spelling out of the relationships will lead to a more thorough understanding of the phenomenon of overinvestment in the boom.

MURRAY BROWN

University of Pennsylvania.

A GEOMETRICAL EXPOSITION OF THE KEYNESIAN SUPPLY FUNCTION

THE purpose of this article is to develop a simple geometrical technique for constructing Keynes' aggregate supply function from the production function. The construction is useful, since it shows explicitly how the aggregate supply function depends on physical conditions of supply as embodied in the production function. The construction is general, since all the versions of the supply function can be developed with this technique. Moreover, diagrammatical representation has the virtue of holding the use of mathematics to a minimum, thereby increasing the ease with which some people can handle this concept. Finally, the presentation facilitates a comparison of Keynes' supply function with that put forward by Professor Patinkin.

The following Keynesian assumptions are made:

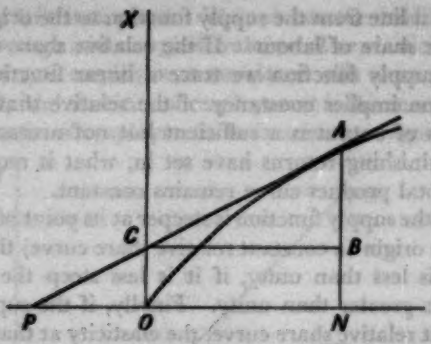
1. All commodities are produced under conditions of perfect competition. The capital stock extant is given and, globally, labour is the sole prime cost of production.

2. Entrepreneurs aim at maximising profits; prices of final commodities are flexible and the wage-unit in terms of money is constant. This ensures that, in alternative positions of short period equilibrium, the real wage-rate is equal to the marginal product of labour.

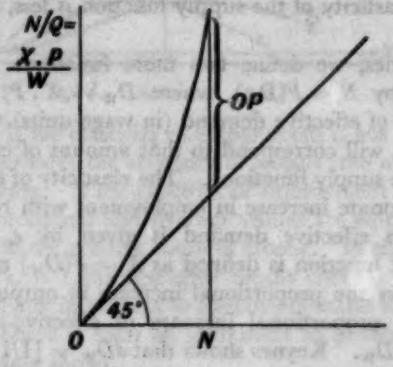
Consider the total product curve. To any level of real output, X, there corresponds (given the stock of capital) a unique volume of employment as determined by the production function. Given assumption 2, the slope of the total product curve is equal to the real wage-rate and the elasticity of the curve (the ratio of the marginal to the average product) is equal to the relative share of labour. Now, it can be shown that OP is equal to profits in terms of the wage-unit. Profits in terms of the product ($BN = CO$) multiplied by the reciprocal of the real wage (BC/AB) is equal to profits in terms of the wage-unit. By similar triangles $PO/CO = BC/AB$. Therefore profits in terms of the wage-unit is PO. This result provides us with a simple technique for constructing the aggregate supply function. We can then show that Keynes' employment function (which is inverse to the supply function) stands with respect to the relative share of labour and the elasticity of output in the traditional relation of total, average and marginal values.

We assume, as does Keynes, that to any level of the money value of output in terms of the wage-unit ($X \cdot P/W$), there corresponds a unique level and distribution of employment (N).[1] Money output ($X \cdot P$) is equal to the sum of gross money profits (K) and aggregate factor cost ($N \cdot W$). Money

[1] These dimensions are suggested by Keynes' own treatment. See *The General Theory*, p. 55, footnote 2.



income in terms of the wage-unit is equal to profits in terms of the wage-unit plus N. Aggregate factor cost (N) can be represented as a 45° line. Suppose employment, and hence aggregate factor cost, is equal to ON. Profits in terms of the wage-unit, as shown by the production function, is OP.



And OP plus ON is equal to money output in terms of the wage-unit. In this way, by varying the level of employment along the production function, we can generate Keynes' supply function. This technique reveals an interesting property of Keynes' supply function: the distance between the 45° line and the supply function measures profits in terms of the wage-unit, which if they were expected by entrepreneurs would be just sufficient to induce them to provide the corresponding amount of employment. Assuming diminishing returns, profits in terms of the wage-unit are positive, so that Keynes' supply function must lie between the 45° line and the y-axis.[1]

Or look at the matter in this way. $W \cdot N = Q \cdot X \cdot P$, where Q is the relative share of labour and $X \cdot P/W = N/Q$. The tangent of the angle

[1] This appears to have been overlooked in the treatment of the supply function by H. G. Johnson. See his appendix to D. H. Robertson's, "Keynes and Supply Functions," Economic Journal, December 1954, pp. 485–7. This restriction is due to the fact that the labour commanded by the money value of output must be greater than the man-hours of labour embodied in that output if there are other claimants to output besides labour.

made by drawing a line from the supply function to the origin is the reciprocal of the relative share of labour. If the relative share is constant as we move along the supply function we trace a linear function. Linearity of the supply function implies constancy of the relative share. Constant returns at all levels of output is a sufficient but not necessary condition for linearity. If diminishing returns have set in, what is required is that the elasticity of the total product curve remains constant.

If the slope of the supply function is steeper at its point of intersection with a ray through the origin (a constant relative share curve) the elasticity of the supply function is less than unity, if it is less steep the elasticity of the supply function is greater than unity. Finally, if the supply function just touches a constant relative share curve, the elasticity at that point is equal to unity. This technique for determining the elasticity of the supply function is reminiscent of Marshall's way of estimating the elasticity of a demand curve by its points of intersection with a family of constant-outlay curves.[1]

It will be shown that the relative share of labour rises, falls or is constant according as the elasticity of the supply function is less, greater or equal to unity.

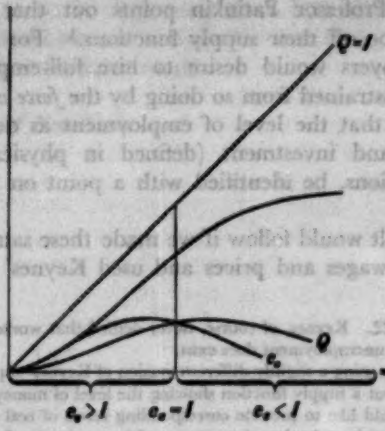
Following Keynes, we define two more functions. The employment function is given by $N = F(D_W)$, where $D_W = X \cdot P/W$. This function relates the amount of effective demand (in wage-units) with the amount of employment which will correspond to that amount of effective demand (it is the inverse of the supply function). The elasticity of employment, which shows the proportionate increase in employment with respect to a proportionate increase in effective demand is given by $e_e = dN/N/dD_W/D_W$.[2] Finally, the output function is defined as $X = F(D_W)$ and the elasticity of output which shows the proportional increase in output in physical units with respect to a proportional increase in effective demand is defined as $e_o = dX/X/dD_W/D_W$. Keynes shows that $dD_W = [1/1 - e_o]dP_W$.[3] Since his proof is cumbersome, let us provide a simple geometric proof of his result. Inspection of Fig. 1 shows that $dX/dN = X/D_W$. It follows that $e_o = dN/dD_W$. But, we have seen that $D_W = P_W + N$ so that $dD_W = dP_W + dN$, and $1 - dN/dD_W = dP_W/dD_W$. It follows that $1 - e_o = dP_W/dD_W$. We now see that the elasticity of output ($e_o = dN/dD_W$) is the reciprocal of the slope of the aggregate supply function. With this

[1] Some versions of the supply function do not deflate by the wage-unit. In these versions the wage-unit in terms of money is assumed constant and the supply function is defined as $X \cdot P = f(N)$. In this case the supply function is not restricted to a range between the 45° line and the y-axis, and after full employment is reached the supply function becomes vertical, whereas those functions which are deflated by the wage-unit are not defined beyond the full-employment level. But, and this is the essential point, all the other conditions hold equally for undeflated functions, because the constant wage-unit acts only as a scale factor.

[2] Keynes, *General Theory*, p. 280. In a recent article, "Keynes' Aggregate Supply Function: A Suggested Interpretation," Economic Journal, September 1960, pp. 536–42, Paul Wells chooses to call Keynes' employment function the aggregate supply function. This is a matter of taste, since one function is the inverse of the other.

[3] Keynes, *General Theory*, p. 283.

result everything falls into place. We can use the traditional relationship between total, average and marginal values. The elasticity of output is the marginal increment to employment associated with a marginal increment to effective demand; the elasticity of employment is this marginal ratio divided by the average ratio of employment to income in wage-units (the relative



share of labour). If the elasticity of employment is less than unity (the case of a falling relative share) the elasticity of output (the marginal ratio) is less than the relative share. If the elasticity of employment is unity (the relative share is constant) marginal and average values are equal, *i.e.*, the elasticity of output is equal to the relative share of labour. In the special case where $dN = dD_W$ so that $e_e = 1$, the aggregate supply curve is a 45° line; constant returns prevail and any increment to effective demand will be fully absorbed by prime costs. There is then no increment to profits, which is precisely what Keynes' formula shows.

Now we can compare Keynes' supply function with one suggested by Professor Patinkin. For this purpose, the second assumption is crucial. It implies, that as between alternative positions of short-period equilibrium, the real wage-rate is equal to the marginal product of labour (employers are on their demand function for labour). This result allows Keynes, in determining the level of employment, to identify the intersection of his supply function and the aggregate demand function with the savings–investment equilibrium condition. Professor Patinkin has called this identification into question and has introduced a version of the supply function which he claims is different in conception from Keynes'.[1] Professor

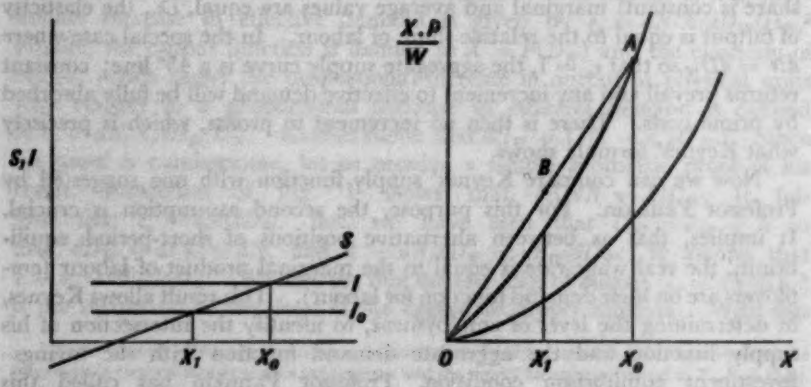
[1] See Patinkin, Don, *Money, Interest, and Prices* (1957), pp. 211–24 and p. 478. Patinkin's supply function is derived by finding the optimal amount of labour employers would like to employ at any given level of the real wage-rate and then determining from the production function the physical output resulting from this labour input. For a given level of the real wage-rate Patinkin's supply function is a vertical line showing the amount of physical output entrepreneurs would like to supply.

Patinkin desires to make not only Keynes' labour-market assumptions but to consider all possible time paths of wages and prices. Consider the following Patinkin case: let real output fall from a previously achieved full-employment level and suppose the time path of wages and prices is such that they fall proportionately so that the real wage-rate remains at its full-employment level. Professor Patinkin points out that both employers and workers would be off their supply functions.[1] For at the prevailing real wage-rate employers would desire to hire full-employment amount of labour but are constrained from so doing by the *force majeure* of effective demand. It follows that the level of employment as determined by the equality of saving and investment (defined in physical units) cannot, under these assumptions, be identified with a point on Patinkin's supply schedule.

Precisely this result would follow if we made these same assumptions as to the time path of wages and prices and used Keynes' supply function.[2]

[1] Patinkin, *op. cit.*, p. 222. Keynes, of course, never denied that workers are off their supply functions—*i.e.*, involuntary unemployment does exist.

[2] This is easiest to see by using a slightly different version of Keynes' supply function. Taking $X \cdot P/W = f(X)$, we trace out a supply function showing the level of money income in wage-units at which entrepreneurs would like to provide corresponding levels of real output. To trace out the supply schedule in these units, take the mirror image of the production function and let employment be ON and output be NA. Again, profits in wage-units is OP. Since OP plus ON equal $X \cdot P/W$, by varying the level of employment, we trace out another version of the supply function. Let the full-employment level of real output correspond to point X_0 in the savings–investment dia-



gram and to point A on this supply function. Assume the rate of investment falls so that real output falls to X_1, and assume, as does Patinkin, that wages and prices fall proportionately. Draw a ray from the origin to point A. The tangent of angle AOX_0 is the reciprocal of the real wage-rate. Since the real wage is unchanged, we move along the ray to point B. At this point entrepreneurs would like to provide the X_0 level of output but are constrained by effective demand to X_1. Entrepreneurs are off Keynes' supply function in exactly the same way as they are off Patinkin's curve. And just as with the Patinkin model, the savings–investment equilibrium condition no longer determines a level of output (employment) which lies on Keynes' supply schedule.

The level of employment as determined by the saving–investment equilibrium condition could not in this case be identified as a point on Keynes' supply schedule, since all points on the schedule meet the condition that the real wage-rate is equal to the marginal product of labour. If this condition is not fulfilled we are off Keynes' schedule in exactly the same way we are off Patinkin's. This is to be expected, since Patinkin's supply schedule is simply a mathematical variant of Keynes'; with both, if you make the same assumptions, you get the same results.

ALVIN L. MARTY

The City College of New York.

OPEN-MARKET OPERATIONS AND THE PORTFOLIO POLICIES OF THE COMMERCIAL BANKS[1]

In a recent article in this JOURNAL[2] on "Open-market Operations *versus* Reserve-Requirement Variation" Mr. Joseph Aschheim examines the difference that exists between open-market sales or purchases of securities and variations of reserve requirements, with respect to their effect on security prices. Thus, he restricts his analysis to one facet of open-market operations.

It is proposed in this paper to enlarge upon the analysis of Mr. Aschheim so as to include all the different aspects of open-market operations with respect to portfolio policies of the commercial banks. In this more general analysis the "price effect" on securities which Mr. Aschheim treats in his article will be more thoroughly studied. Preceding this main line of analysis, however, there is a short discussion of what is involved in the portfolio policies of the commercial banks.

I. BANK PORTFOLIO POLICIES AND THEIR LIMITS

By "portfolio policy" is meant the manner in which a commercial bank allocates its resources between securities and loans. Anything that affects bank resources or the prices of the assets in which these resources are invested, affects bank portfolio policies. Therefore, open-market operations, which affect both bank resources (through changes in bank reserves) and the prices of one category of bank assets (securities), also influence bank portfolio policies. However, before considering how open-market operations influence bank portfolio policies, it is appropriate to discuss the limits to which these policies are subjected irrespective of central bank action.

Although lending is the main business of commercial banks, investments in securities are also considered profitable. In fact, it is impossible to find a commercial bank which uses its resources only for loans. However, being always concerned with the liquidity of their assets, commercial banks try to achieve a portfolio combination of loans and securities that assures them a maximum profit with a comfortable degree of liquidity.[3] In other words, in deciding on the allocation of its resources a bank will operate so that an increase in its loans does not jeopardise its ability to meet its obligations.

[1] This paper is part of a dissertation on "Open-Market Operations: A Theoretical and Empirical Study" submitted by the author to Columbia University in May 1960. The author is indebted to Professors Harold Barger and Richard Selden of Columbia for a number of very helpful comments.

[2] ECONOMIC JOURNAL, December 1959, pp. 697–704.

[3] See "The Problem of Commercial Bank Liquidity," *Banking*, November 1957, p. 128.

In that respect security investments become important not only for their income-procuring power but also for the degree of liquidity they possess.[1] On the other hand, the fact that loans constitute the prime source of bank revenue calls for a restriction of the amount of liquid securities to a minimum; that is, a bank cannot accumulate securities which combine income with liquidity at the cost of decreasing its holdings of loans or securities bought primarily for their income.

It appears, therefore, that there are both upper and lower limits to the ratio of loans to total assets for commercial banks. The upper limit constitutes the least liquid position the bank is prepared to accept, while the lower limit indicates the least profitable position of the bank. These ratios differ among the various banks and at different times; a bank may consider it safe at one time to use 90% of its resources in loans, but at another it may not be willing to devote more than 50%. The ratio chosen by a bank depends on the bank's attitude towards liquidity and its profit goal. Furthermore, variations may appear in the ratio of securities held primarily for liquidity purposes (short-term government securities) to the total security portfolio.[2]

In some cases law or custom may compel a commercial bank to keep a minimum percentage of its assets in the form of short-term government securities. Such securities are considered as part of the bank's secondary reserves. For instance, in Italy and Belgium, until recently, banks were required by law to invest part of their resources in treasury bills. In other countries similar requirements have been established by agreement between the central bank and the commercial banks (*e.g.*, in Australia and Canada). On the other hand, in the United Kingdom the banks abide by a liquidity ratio, set by custom.

The existence of secondary reserves in the form of short-term securities sets a limit beyond which a commercial bank may not go, although it can accumulate as many liquid assets as it thinks necessary. Of course, profit considerations will prevent a bank from increasing its security portfolio simply to enhance its liquidity.

Thus, it appears that the ratio of securities to total assets includes a ratio of special importance both to commercial banks and to the central bank. This is the ratio of liquid assets to total assets, and it implies that a bank may substitute loans for all its security holdings except those that constitute the core of its liquidity. The existence of this liquidity ratio as well as the banks' preference for loans defines the area within which a commercial bank may move in formulating its portfolio policy, and it has particular importance for open-market operations, as will soon be shown.

[1] Ronald I. Robinson, *The Management of Bank Funds* (New York: McGraw-Hill Co., Inc., 1951), p. 283.

[2] W. Manning Dacey, "Treasury Bills and the Money Supply," *Lloyds Bank Review*, No. 55, January 1960, p. 6.

II. Open-market Operations and Bank Portfolio Policies

Open-market operations influence bank portfolio policies through their effects on reserves, security prices and the composition of the banks' security portfolios. These effects will be designated respectively the *reserve effect*, the *price effect* and the *shifting effect*.

The reserve effect is the immediate result of open-market operations; that is, purchases from or sales to the private sector of the economy alter banks reserves. In so far as the central bank can expect the banks to adjust their portfolios upwards in the case of open-market purchases and downwards in the case of open-market sales, the reserve effect alone may justify the use of open-market operations.

However, the reserve effect may not always prove effective. In particular, a change in reserves may not by itself produce a change in bank loans. There are a number of reasons why a bank may not wish to change its amount of outstanding loans. For instance, a commercial bank may have expanded as much as it considers safe with respect to the liquidity of its position, and, therefore, it may respond to an increase in its reserves by reducing its central bank indebtedness. Another reason may be a declining demand for loans which calls for a reduction in loan rates. Or further, a bank faced with difficulties in having its loans repaid may be reluctant to renew the maturing loans.

On the other hand, a decrease in reserves may not necessarily bring about a decrease in loans, as a bank may be willing to liquidate securities held or use the proceeds of maturing securities to increase its loans. The latter is of particular importance in the United States to-day, because the security portfolios of commercial banks consist of highly liquid short-term government securities. Such a portfolio makes it easy for the banks to replenish their reserves without restricting their loans.

Therefore, it seems that the reserve effect produced by open-market operations may not bring about the portfolio changes desired by the central bank. However, inasmuch as commercial banks hold securities for purposes other than liquidity, that is, for income purposes, open-market operations may effect bank portfolio policies through their effect on security prices, *i.e.*, through the " price effect."

The price effect may be examined in terms of changes either in security prices or in security yields; both are the same thing. However, as far as portfolio policies are concerned, the price effect may have two different results. Changes in security prices produce a change in the market value of securities held, but at the same time make the purchase of new securities less attractive than before, compared with lending. That is, if loan rates remain the same and security prices rise, a bank with extra reserves may be disinclined to buy securities because their return (yield) has fallen. Likewise, a fall in security prices makes the return on securities that may be bought

competitive with loan rates. In this case a bank may use its extra reserves to buy securities.

Open-market operations give rise to both these developments, the final outcome depending on the reactions of the banks, which in turn depend on the state of economic activity.

During periods of expansion the banks tend to liquidate securities to satisfy an increased demand for loans. If in such circumstances the central bank tries to check the increase in bank loans by selling securities, the market value of bank-security portfolios will decline, while the return on securities to be bought will increase. Therefore, if security yields increase enough to become competitive with loan rates it is likely that the banks will shift from loans to securities. Open-market sales in this instance will be effective.

However, there are two factors which may prevent open-market operations from being effective in the circumstances outlined above. One is the fact that the demand for loans increases in periods of high economic activity, and the banks will try to satisfy this demand. The other is the concern of central banks with " orderly " conditions in the market.[1] Thus, for both of these reasons the yield may not become competitive with loan rates. Moreover, owing to the second factor, expected capital losses from security sales may not be great enough to check a substitution of loans for securities.[2]

In periods of declining economic activity the market value of securities held by the banks increases, and yields on securities that may be bought decrease. In such circumstances banks may not be willing to buy securities. However, since the demand for loans declines in periods of low economic activity, banks may consider securities as the only profitable assets available. As examples one may cite the behaviour of the American commercial banks in 1954, 1955 and 1957.[3] The banks increased their demand for securities in the first three quarters of 1954, while the Federal Reserve System was engaging in open-market purchases to stimulate economic activity. In 1955, on the other hand, the banks sold about $7·5 billion of securities at the same time as the System was selling, and in the last quarter of 1957 the banks responded to the System's open-market purchases by buying.[4] One finds similar developments in Canada in 1956, when,

[1] It should be pointed out here that, as far as the theoretical implications of the price effect are concerned, the concept of an orderly market does not affect them; that is, theoretically, it is possible that commercial banks, finding themselves with increased reserves and unwilling to increase their loans, will buy securities from the private non-bank sector. However, there is a limit to this possibility set by the prices which the banks are prepared to pay for the securities they buy. There may be a point in the process of price increase, caused by the banks' demand for securities, beyond which the banks may not be willing to go for reasons of profitability (very low yields) and fears of an adverse movement in security prices.

[2] Tax laws may also reduce the magnitude of capital losses. For instance, the Federal Income Tax Law in the United States allows commercial banks to charge capital losses against any income.

[3] The situation of excess bank reserves in the 1930s may also be used an as example.

[4] Cf. Warren L. Smith, " Financial Intermediaries and Monetary Controls," *Quarterly Journal of Economics*, Vol. LXXIII, No. 4, November 1959, pp. 533–53.

although buying, the Bank of Canada had to switch to selling in order to satisfy an increased demand for securities from the chartered banks.

The analysis of the price effect as presented here shows that open-market sales may not prevent the banks from selling, and open-market purchases may not prevent them from buying. However, this is due more to the fact that central banks are not prepared to allow yields to fluctuate very much, rather than to an inherent inadequacy of open-market operations. For it could be maintained that if prices were depressed far enough banks may cease substituting loans for securities, and they may even switch to buying securities. Thus, it appears that the price effect of open-market operations may not bring about the desired change in bank portfolio policies.

Nevertheless, this may not necessarily be so, as the limits to portfolio policies—developed earlier in the form of ratios—may bring pressure on the banks to alter their portfolio policies in the manner desired by the central bank. If the banks' security portfolios are kept down to the minimum secondary reserves necessary because the banks have expanded their loans, open-market sales may prevent the banks from selling securities and even induce them to buy, owing to the fact that an increase in secondary reserves may be required as a result of an increase in loans.

The problem of the central bank is to see that the banks leave the recession with low security holdings and leave the boom with high security holdings; that is, the banks would have excess reserves as the expansion begins and a deficiency of reserves as the boom ends. The central bank can achieve the former by applying an abstaining open-market policy during the latter part of the recession, thus making it difficult for the banks to accumulate securities that may be used to increase their loans when expansion begins. It is very unlikely that the non-bank private sector will satisfy the banks' demand for securities at prices satisfactory for the banks, for during recession the market value of security portfolios increases, and the transactions demand for cash is low. The central bank can also persuade the banks to buy securities as the boom ends, by forcing yields up enough to become competitive with loan rates, provided that such a policy is not inconsistent with the central bank's concept of market orderliness.

However, this use of open-market operations will not suffice to bring about the desired changes in the portfolio policies of the banks. In particular, it seems that open-market sales cannot be used effectively at the beginning of expansion to absorb part of the bank's excess reserves. The demand for loans is very strong (pushing rates up), and the future outlook is favourable. Likewise, it may not be easy for the central bank to engage in open-market purchases at the beginning of a recession. Thus, a manipulation of reserve requirements becomes necessary; that is, to increase reserve requirements as the expansion begins and reduce them with the appearance of recession. So used, open-market operations and reserve requirements may bring about the desired change in bank portfolio policies. In this

respect open-market operations serve as a complementary weapon to reserve policy.

Open-market operations also have an effect on bank portfolio policies through changes in the composition of bank security portfolios. This may be brought about if a central bank expresses a preference for a particular security and stands ready to buy and sell the asset in question at a fixed price. By doing this a central bank may induce the banks to shift to the security preferred by the central bank. This, of course, depends to some degree on the maturity structure of the banks' security portfolio: the shorter the maturity structure, the easier it is for the banks to change the composition of their security portfolios without shifting.

If the banks restrict their holdings of liquid assets in the security favoured by the central bank the latter's control over bank liquidity increases. For a central bank, in co-operation with the Treasury, may create a shortage of this security, thus making it difficult for the banks to adjust their secondary reserves to an increasing loan portfolio.[1]

The whole discussion of bank portfolio policies has been based on the assumption that commercial banks do vary their portfolio combinations. If they distribute any change in their reserves on a fixed basis the analysis does not hold; that is, if the banks always apply the same ratio in allocating any increase or decrease in their reserves there will be no substitution of securities for loans, or vice versa. Of course, in that case one cannot speak of portfolio policies.

The conclusion of the preceding analysis is that central banks, in the circumstances prevailing in the money market to-day, cannot be sure that their open-market operations will induce or force the banks to alter their portfolio policies. Specifically, as long as the commercial banks are more liquid than they consider necessary, they are in a position to circumvent the effects of open-market operations. However, it was noted that this is due not so much to any inherent defect of open-market operations as to the restricted freedom of the central banks to cause an increase in the yields large enough to become competitive with the loan rates. A central bank that is committed—officially or unofficially—to preserving an "orderly market" cannot allow yields to rise or fall to the extent required to induce the banks to buy and sell securities of the time desired by the central bank. For this reason open-market operations can accomplish only part of the task of monetary restraint or easement. Resort to variations of reserve requirements may at times become necessary if open-market operations are to succeed in bringing about the desired changes in the portfolios of the commercial banks.

C. A. THANOS

Bank of Greece.

[1] *Report of the Committee on the Working of the Monetary System* (London: H.M. Stationery Office, 1959), p. 51.

TAX INCIDENCE AND GROWTH[1]

I. Introduction

The effects of taxes (and sometimes associated budget policies) on the economy are conventionally separated into effects on income stabilisation and on income redistribution. The introduction, by Harrod and Domar, of equilibrium on income growth paths, has had a profound influence on the theory of stabilisation.[2] No such corresponding re-assessment of the standard theory of incidence has occurred.[3]

It seems no less necessary that it should. If national income is growing, so are individual or sectional incomes, and probably at different rates. The incidence of a tax can change both levels and rates of growth; what is more, growth can change the incidence of a tax!

The consequences of this situation cannot be handled by a theory of incidence cast in comparative static terms, dealing with individual or group income changes from a permanent pre-tax to a permanent post-tax level, thus implying that a tax has a " unique " incidence.[4]

This paper is an attempt to work out the said consequences, show the insufficiency of the standard theory and suggest some necessary extensions to it. The theoretical re-assessment is shown to have a ready practical bearing, remembering that the redistributive function of the modern budget operates in a growing, not a stationary, economy.

II. Tax Incidence *versus* Tax Structure

To begin with the usual theory of incidence, this has reached a new pitch of development in recent years. Historically, the variety of definitions and

[1] I am grateful to Professor Alan Peacock and Mr. Ralph Turvey for comments.

[2] The use of fiscal tools to influence the " actual " rate on to an " equilibrium " path has been demonstrated, whether this be defined as a " natural " (full employment) or " warranted " (full capacity) path; whilst either of the latter two may themselves be affected by fiscal policy. See R. A. Musgrave, *The Theory of Public Finance* (New York, 1959), Chapter 20; A. Smithies, " The Control of Inflation," *Review of Economics and Statistics*, August 1957; W. L. Smith, " Monetary-Fiscal Policy and Economic Growth," *Quarterly Journal of Economics*, February 1957; A. T. Peacock, " The Public Sector and the Theory of Economic Growth," *Scottish Journal of Polital Economy*, February 1959; D. C. Smith, " Monetary-Fiscal Policy and Economic Growth in an Open Economy," *Quarterly Journal of Economics*, November 1960.

[3] Musgrave, whilst he does discuss the interaction between growth, factor shares and incidence (*op. cit.*, pp. 372–4), does not recast his incidence analysis into dynamic terms as he does his stabilisation analysis. Shoup has noted " that a chapter to deal with incidence in a macro-economic setting that ' combines growth with the need for compensatory policies ' did not get written." See C. S. Shoup, " The Theory of Public Finance," *American Economic Review*, December 1959.

[4] Hence, in this field of economics, the remarks of both Harrod and Domar as to the changes wrought in standard thought by the introduction of growth appear apt. See Harrod, " Domar and Dynamic Economics," Economic Journal, September 1959, p. 451 and Domar, *Essays in the Theory of Economic Growth* (New York, 1959), Chapter 1, pp. 31–2.

distinctions in incidence discussion has been matched only by their impression.[1] Usually now, the total redistributive effect on individual or group real incomes that a tax occasions is called simply its incidence.[2] Changes in real incomes may occur through movements on the factor-earnings side of a group's account, and on the expenditure side, if relevant product prices change.[3]

What we need to do is to make a sharp distinction between the *structure* of a tax and its *incidence*. The latter has been defined; the former designates the administrative code and provisions of a tax: base, rate, exemptions, etc.

A tax can have a progressive structure or a progressive incidence. A tax levied on income at an increasing percentage rate as income increased was, and still is, referred to as a " progressive " income tax (conversely a " regressive " tax). The implied meaning of " progressive " was, and still is, that low-income groups are favoured by the tax compared with high-income groups. But it will be realised at once that this is a statement in incidence. It is fair to say that such an inference of incidence from mere structure is a substitute for more refined analysis. When the full repercussions of the tax are taken into account, and especially if one takes the Musgravian view that any public expenditure or debt-redemption policy associated with a tax must be included in determining its incidence, a tax with a " progressive " structure could have a " regressive " incidence.

Hence the terms " progressive " or " regressive " can designate a kind of rate structure or a form of incidence or income redistribution.

It will be noted that this distinction between structure and incidence has arisen with the refinement of incidence theory. It can now be seen as misleading to infer the second, which is the important matter, from the first. We shall keep the distinction well to the fore in introducing dynamic ideas. For reference to income growth paths can enter into each aspect independently.

[1] For an incisive criticism of the analytical concepts of Seligman, von Merin, Dalton, Cannan, Black and Mrs. Hicks, see Musgrave, *op. cit.*, Chapter 10, pp. 227–31.

[2] This is Musgrave's formulation (*op. cit.*, Chapter 10). There is some difficulty about the nomenclature " tax " here. Musgrave distinguishes " specific " incidence, when a tax is imposed with no (real) changes on the *expenditure* side of the government account, " differential " incidence, when one tax replaces another of equal yield, and " balanced budget " incidence, when government expenditure is increased by the tax yield. The converse of each case yields different concepts for the " incidence " of changes in government expenditure. Clearly, in the balanced-budget case incidence is of a combined tax and government expenditure policy. It is immaterial to this paper which type of incidence is chosen. We shall use the word " tax "; if it is desired to interpret any statement in " balanced-budget " terms " tax " will imply a whole budget policy.

[3] This is again to follow Musgrave. The main doctrinal dispute to-day is whether, on the imposition of a tax, its incidence can be ascertained solely by reference to the income side of a group's account. In contrast to Musgrave, Rolph and Stockfisch think that it can. This is not a reversion to the traditional distinctions, because no " other distributive effects " are delineated from incidence. See E. Rolph, *The Theory of Fiscal Economics* (Berkeley, 1954), pp. 124–6, and Stockfisch, " On the Obsolescence of Incidence," *Public Finance*, No. 2, 1959. We shall, in general, use Musgrave's approach, but the adoption of Rolph's would not materially alter the findings of this paper.

The structure of a tax can be so formed that levies are apportioned to changes in income, rather than levels. We can call this a tax of dynamic-structure, as opposed to one of static-structure.

The basic concept of incidence can be separately extended. Conventionally, it concerns the redistribution of levels of income; this can be recast into a dynamic form as a study of the effects on the rates of change of income. To a static incidence concept, we can add dynamic incidence.

The two aspects are distinct, because a static-structure tax can be analysed either for its effect on group levels or rates of change of income; a dynamic-structure tax can have the static or dynamic incidence concept applied to it.

There is, of course, yet a third way in which dynamic elements could enter incidence theory. The processes of adjustment of levels, or of rates of change of income, will no doubt contain lagged responses of many different kinds; explicit account might be taken of these,[1] or adjustment to new group equilibria might be regarded as instantaneous. Hence a tax of a particular structure is really open to four, not two, alternative methods of analysis: a *comparative static* or *dynamic* analysis of effects on *income* levels, or either treatment to determine *changes in growth paths*.

We shall avoid too much complication by assuming adjustments to be instantaneous, and try to choose examples accordingly. For everyday discussion of tax incidence, *i.e.*, that a tax is " progressive " or " regressive," relates to the ultimate effects, and not to the processes by which they are achieved. It is on the correctness and extension of such statements that we wish to concentrate attention.

We now take up dynamic-structure taxes and the dynamic incidence concept separately.

III. Dynamic-structure Taxes

Dynamic-structure, in relation to static-structure, taxes will be discussed only briefly. Whether such taxes are worth discussing in public finance depends on any use that they might have as policy weapons.[2] They are not unknown in tax practice,[3] but difficulties in administration arise. For one thing, differences would have to be used to represent rates of change, and the individual's tax assessment would read

$$T = \alpha(Y_1 - Y_0)$$

[1] This is in fact the way Musgrave suggests dynamics might enter incidence theory (*op. cit.*, pp. 209–10). It might be argued that the term " dynamic " should be confined to this aspect alone. But if we follow the Frisch–Schneider rule that any function containing differences or differentials with respect to time is a " dynamic " expression, we shall see shortly that " dynamic " tax structure and " dynamic " incidence are properly dynamic.

[2] Their strongest claim may lie in a sphere outside this paper: in taxes on nations for international development aid.

[3] Domar makes a brief reference to the possibility, but non-existence, of such taxes (*op. cit.*, p. 185). But they have been known, in the form of excess profits taxes, levied on any increase in profits over some datum such as the average level of preceding years.

where T = tax payment per year, α = the rate of tax and Y = income each year. There is no need for α to be constant, of course, so that the dynamic-structure tax can be "regressive" or "progressive," just as can the static-structure tax.[1]

Dynamic-structure taxes might be of importance in either short-term stabilisation policy or for long-run growth. In the former, taxes levied, in an inflationary phase, on the rate of change of profits will generally affect most sharply those firms planning the greatest investment expenditure or adding most to the excess demand for labour. In a policy for growth in an underdeveloped country regressive taxes on rates of change of profits (or turnover) will favour, and encourage, the *fastest growing* firms. Regressive static-structure taxes would merely favour the *largest* firms.

There are many (undesirable) side-effects to both kinds of tax structures. In any situation the best compromise might be a tax-code involving both types in any one assessment, which would then appear

$$T = \alpha (Y_1 - Y_0) + \beta Y$$

where α, the dynamic-structure rate, and β, the static-structure rate, can be variously "progressive" or "regressive," giving rise to a very flexible system.[2]

IV. Dynamic Incidence

We can now turn to the much more important matter of the dynamic incidence concept, bearing in mind that it can be used in an analysis of static-structure or dynamic-structure taxes (or budget-policies).

It is simple to express measures of dynamic incidence in terms corresponding to static incidence. The latter relates to the redistribution between individuals of real income levels, and is replaced now by a redistribution of their shares in growing national income to which a tax may give rise.

The static incidence coefficient relates to a time when all effects have worked themselves out, or when new equilibria are established. We shall similarly separate adjustment processes from ultimate redistribution, by taking the dynamic incidence concept to relate to the new equilibrium growth paths of individuals after the adjustment process. (We thus avoid, of course, the question of whether these processes are analysed statically or dynamically.)

To derive a measure of dynamic incidence, we refer first to measures of static incidence. These depend on the pre-tax and post-tax value of relevant variables, though currently differing conceptions of incidence will

[1] Exactly corresponding remarks apply to the *structure* of transfers.

[2] Since the structure of government transfers (and even government real expenditure) can be similarly treated, a budget-policy, taking account of both the tax-raising and tax-using sides, is open to an even wider range of possible multiple structures.

determine the coverage of "relevant." If we use Musgrave's approach [1] we include changes in real income induced on both the "income sources" and "income uses" side.

If we denote the change in individual real income ΔR, it depends on the price with the tax (price w_0) of the factor that the individual owns and the price without the tax imposed (price w_1). The change in the quantities with and without tax (q_0 and q_1) and the prices (p_0 and p_1) of all n goods bought are relevant, as, finally, is any change in the hours worked or of capital offered (W_0 to W_1). Then [2]

$$\Delta R = f(w_i, W_i, p_{ij}, q_{ij}) \; i = 1,2; \; j = 1,2, \ldots n$$

Such individual changes, in conjunction with an income scale indicating whether it is the poorer or richer individuals who have the relatively most favourable ΔR, will indicate the progressive or regressive incidence of the tax.

Since the dynamic incidence coefficient will indicate the changed course of individual incomes as a result of the tax, it will depend on the changed rates of growth of the same set of variables:

$$\Delta \frac{dR}{dt} = g\left(\frac{dw_i}{dt}, \frac{dW_i}{dt}, \frac{dp_{ij}}{dt}, \frac{dc_{ij}}{dt}\right) i = 1,2; \; g = 1,2, \ldots n$$

These changes in the growth of income of individuals will now indicate the direction of dynamic incidence, when taken in conjunction with a scale showing how individuals are at present sharing in national income growth. Thus if a tax causes a fall in the rate of growth of income of those *already* experiencing relatively lower growth rates, it is regressive. If it increases the rate of growth of such individuals or, from another angle, makes component growth rates less divergent, it is progressive in dynamic incidence.

In a similar way, any standard method of measuring static incidence can be rewritten to yield a measure of dynamic incidence.[3]

The dynamic incidence concept, as we have expressed it so far, begs several questions. For one, the progressiveness or otherwise of a tax is usually discussed in terms of which groups, not which individuals, benefit. This problem of significant aggregation is shared by static and dynamic incidence alike. But its solution may be somewhat different in the two cases.

Discussion regarding static incidence, both in theory and practice, tends

[1] Musgrave, *op. cit.*, pp. 217–23.

[2] Rolph's definition of incidence (*op. cit.*) would involve only w_i and W_i.

[3] For example, Musgrave goes on (*op. cit.*, pp. 223–6) to combine the changes produced by the tax in many individuals' incomes into a single global coefficient based on the relative change in Lorenz-type income distribution curves. If we substitute for the usual horizontal Lorenz axis of "percentage of income" the axis "percentage of the growth of income," the Lorenz-curve measure can be wholly carried over to the dynamic incidence case.

to use an aggregation by income brackets rather than by factor ownership.[1] On the other hand, in the discussion of growth, both historical and theoretical, the factor shares approach is dominant.[2]

It may be desirable to use a factor shares aggregation for the purposes of dynamic incidence, to establish relations with growth discussion, and enable some of the results of the latter to be utilised in tax theory.

Of course, a simple link can be established between aggregation by income brackets and by factor ownership, owing to the fact that the proportion of household income derived from labour services, as opposed to property ownership, is a decreasing function of the level of household income.

This link enables ready equivalences in static incidence; for example, a tax which is relatively harmful to wage earners is equivalent to one that is harmful to low-income groups, and can be stated as regressive.

But can it be similarly stated in dynamic incidence that a tax relatively harmful to a particular class of factor owners is dynamic-progressive or dynamic-regressive?[3] This is not so simple. A tax which is dynamic-progressive will be relatively harmful to that group whose real income is growing the faster.[4] This group may have higher or lower average real income at the moment (in static terms). Suppose labour's share is growing the faster. Then a tax disadvantageous to labour is dynamic-progressive. We then have the desired equivalence between factor ownership and dynamic incidence. But it requires the assumption that the proportion of household income derived from labour services is an *increasing* function of the rate of growth of income. This is the formally equivalent assumption to that required to establish the link between methods of aggregation in the static case. But it can be reduced to a simpler form: it is satisfied if labour's share increases faster than property's in the growth process.

There is now a good deal of evidence, both of an empirical and theoretical character, that this is the case in developed Western countries.[5] If we accept this hypothesis, we can make the link between factor ownership

[1] See, for example, Musgrave, *op. cit.*, pp. 223–4.

[2] See, for example, Irving B. Kravis, "Relative Income Shares in Fact and Theory," *American Economic Review*, December 1959; and N. Kaldor, "A Model of Economic Growth," Economic Journal, December 1957.

[3] We shall now begin this nomenclature: a tax progressive in static incidence is static-progressive, in contradistinction to dynamic-progressive.

[4] It may be clearer just what a tax with dynamic-progressive incidence implies if we re-express it as a tax making divergent group growth rates more convergent; or again, one tending to equalise shares in the rate of growth of national income.

[5] The evidence is strongest for the United States. See I. Kravis, *op. cit.*; also S. Kuznets "Long Term Changes in the National Income of the USA since 1870," *Income and Wealth*, Series II (Cambridge, 1952). For the United Kingdom the "constancy of factor shares" hypothesis is better supported. See E. H. Phelps-Brown and P. Hart, "The Share of Wages in the National Income," Economic Journal, June 1952, and for a theoretical justification, N. Kaldor, *op. cit.*, and "Economic Growth and the Problem of Inflation," *Economica*, August and November 1959. On the matter in general, see S. Kuznets, "Quantitative Aspects of the Economic Growth of Nations: IV. Distribution of National Income by Factor Shares," *Economic Development and Cultural Change*, April 1959.

and incidence as desired. If we wish to allow for the possibility that labour's share is either constant *or* increasing as national income grows, we could still make the link, but in terms of inequalities; for example, a tax harming labour is *not* dynamic-regressive. For the sake of simplicity we shall work with the first hypothesis.

Now that we have established a connection with factor shares we are able to relate dynamic incidence more closely to growth economics.

When we speak of the change in the growth of real income of a group from one rate to another, is this a change between equilibrium full-employment rates? We may assume it is, if we continue the conventional distinction mentioned in Section I between the budget in its stabilisation and in its redistributive aspects, and assume that the stabilisation branch is working successfully. Then the actual rate of growth of national income is equated with the equilibrium rate. There is a little difficulty about the equilibrium rate, which may be regarded as one of full employment of labour (Harrod's "natural" rate) or of capital capacity (Harrod's "warranted" rate). In discussing the relative rates of growth of labour and property before and after tax, it would clearly complicate matters were one factor regarded as remaining fully employed (when there is a tax change) whilst the other is not. So we regard the equilibrium rate as implying full employment for both factors, *i.e.*, the "natural" and "warranted" rates of national income growth are equal.[1] (Of course, this does not imply that the rate of growth of labour and property income are equal.) There is plenty of precedent and theoretical argument[2] to justify this.

The relative changes in individual rates of growth of real income, which appeared in our specification of the dynamic incidence coefficient, are now transformed, then, into the relative changes in the rates of growth of labour and property income, whilst full employment of each is maintained.

V. Comparison of Static and Dynamic Incidence

The static and dynamic incidence coefficients appear closely analogous. They do indeed possess properties in common, but also some important differences. We shall examine one or two properties in each category, since they have interesting implications for theory and practice.

The obvious fact was stated earlier that both incidence coefficients can be applied to the change wrought by a single tax (or budget policy).[3] This is a convenient way of illustrating the relations between the two concepts.

[1] It is the assumption commonly made in discussing stabilisation and growth by the authors cited in Section I.

[2] See, for example, Kaldor, *op. cit.*

[3] Up to now, we have spoken of "pre-tax" and "post-tax" real incomes, as does Musgrave. But as Shoup has pointed out, it is better to refer to incomes without the tax operating, and incomes with its existence; this nomenclature is certainly essential once growth is introduced, as we shall see. See Shoup, *op. cit.*

Let us assume, as a working example from the British tax code, that the structure of the personal income tax is changed such that the earned income allowance is increased (which only benefits labour) with a smaller increase in the standard rate (which concerns all income receivers) to replace the lost yield.[1] There is clearly an immediate benefit to labour in net disposable income. There may be changes also in real gross incomes as a result of the tax (through changes in the price or quantity variables noted in the definition of incidence) dependent on individual product and factor supply and demand elasticities; furthermore, there may be some change in the overall rate of growth through changes in aggregate savings and labour supply. We shall ignore effects other than the immediate, precisely because it is very difficult with present incidence theory to handle, for example, rate-of-growth effects. In a later section we shall relax some of these restrictions, but for the moment, we shall assume the tax mentioned, or another one,[2] would increase the rate of growth of labour's real net disposable income at the expense of the rate of growth of property income.

We depict two cases below; in each, " inherent " growth tendencies of real income over time for each group are represented by dotted lines, full lines denoting " actual " time paths of income with the tax in question in operation. In both cases wages were growing faster, and experience a yet higher rate of growth with the tax. The difference in the two situations lies in the type of growth assumption; in the first diagram all growth rates are linear functions of time; in the second diagram exponential rates of growth of income are substituted.

When the static and dynamic incidence coefficients are evaluated in these situations, a difference and similarity in their properties will appear, both vital for later considerations.

First, the important difference: the static incidence coefficient, on the conventional formulation, will in each case indicate progressive incidence when evaluated at points of time up to the cross-over of income levels (the intersection at t_2), subsequently to indicate regressive incidence. On the other hand, the dynamic incidence concept will show consistently regressive incidence in each case.

This can be shown with any measure of incidence. Take the simplest static formulation.[3] If the relative change of income of the poorer group is taken over that of the richer, then the coefficient will exceed unity when

[1] This is to use Musgrave's concept of *differential* incidence, where there is a change in tax form but no change in yield or government use of tax proceeds.

[2] For example, the same effect might be produced through transfers. An overall increase in a tax which concerns all groups is used for an increase in some transfer payments of particular benefit to labour. It is worth emphasising at this point that not merely a few particular taxes would have the effects we are analysing; just as nearly every tax (substitution) changes relative *levels* of income, so nearly every tax (substitution) will change *rates of growth of income*. The exceptions, which cannot be numerous, are said to have " neutral " incidence, whether static or dynamic.

[3] See Musgrave, *op. cit.*, p. 222.

incidence is progressive, and vice versa. On this convention, for points of time [1] t_0 till t_2, letting labour's real income be denoted by R^w and property's

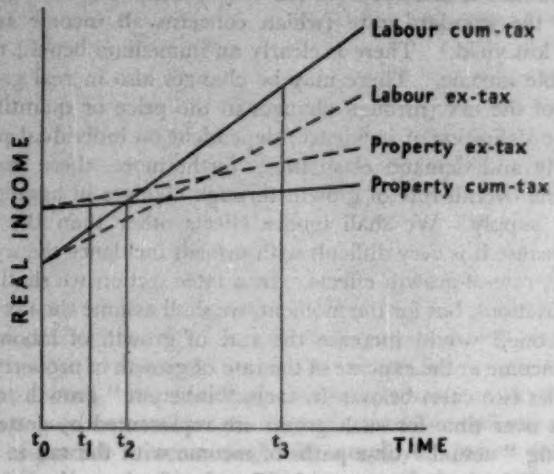


FIG. 1

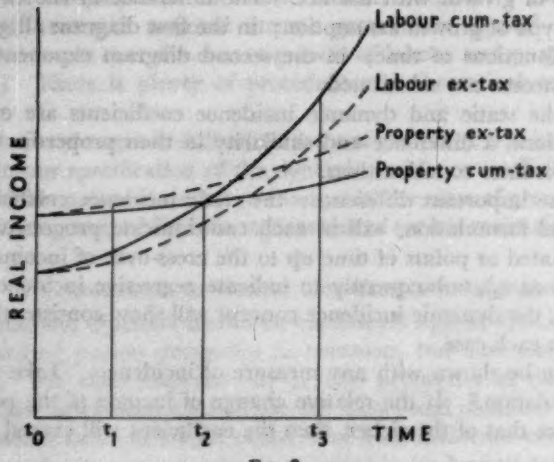


FIG. 2

by R^p, with subscripts 1 and 2 denoting cum-tax and ex-tax magnitudes respectively:

$$\frac{R_1^w/R_2^w}{R_1^p/R_2^p} > 1$$

[1] Note that, since we are assuming instantaneous adjustment, t_0 represents the point of time at which the tax is imposed, and after which new equilibria are established.

since the group with the lower *level* of income, labour, always gains at the expense of property with a higher *level* of income.[1] But after t_2 we should have to write:

$$\frac{R_1^p/R_2^p}{R_1^w/R_2^w} < 1$$

for the poorer group (now property income receivers) is the relative loser.[2]

On the other hand, at all points of time the dynamic incidence coefficient, written according to the same conventions,[3] will yield the same answer as to regressiveness or progressiveness whenever evaluated; in this case it is always regressive.

For, putting the change in income growth rate of the "poorer" group (that with the lower rate of growth) over the change in income growth rate of the "richer," the dynamic incidence coefficient

$$\frac{dR_1^p/dt}{dR_2^p/dt} \div \frac{dR_1^w/dt}{dR_2^w/dt} < 1$$

is below unity for any point of time, since property income is always relatively disadvantaged in growth terms.

Hence, if there is a crossing of actual income growth paths, which we shall refer to as a "cross-over," the static incidence coefficient undergoes a radical change, whilst the dynamic incidence does not.[4]

So much for the moment for this important difference. A significant similarity has yet to be noted. We have just seen that the static coefficient changes value at t_2, the dynamic does not. However, it will be evident that when all growth rates are linear the proportionate change in group incomes is constant, so that the static incidence coefficient is constant from t_0 to t_2, when it changes to its reciprocal. The dynamic incidence coefficient is clearly constant all the time. But once growth rates cease to be linear, this constancy of the static coefficient before and after the cross-over, and of the dynamic coefficient all the time, is lost, and they each vary as time changes.

To show this, it will prove sufficient to evaluate the static incidence

[1] We now see the importance of referring to ex-tax and cum-tax incomes. It would be pointless to calculate the change in income due to the tax by reference to pre-tax incomes; the loss or gain depends on levels that incomes would have reached without the tax. "Inherent" growth paths mean those without the tax substitution. Note that we do not postulate a no-government situation, such as has been used in estimating the redistributive effect of total government fiscal activity and which has suffered Prest's strictures. See A. R. Prest, "Statistical Calculations of Tax Burdens," *Economica*, August 1955.

[2] This is assuming the "poorer" group is defined by reference to actual incomes, not "inherent" incomes.

[3] The "poorer" group in this case is that with the lower rate of growth, not the lower level of income.

[4] This result is particular to the cases used. A cross-over effect in the dynamic incidence coefficient occurs if there is a change-over in the group experiencing the fastest rate of growth of cum-tax incomes. What is general here is that an identical situation can produce cross-over effects in one coefficient and not in the other.

coefficient S for Fig. 2, where growth is exponential, at some point of time after the cross-over point:

$$S = \frac{R_0^p e^{r_1 t} / R_0^p e^{r_3 t}}{R_0^w e^{r_2 t} / R_0^w e^{r_4 t}} = \frac{e^{t(r_1 + r_3)}}{e^{t(r_2 + r_4)}}$$

In the above, R_0 represents average income levels at t_0, r_1 and r_2 denote the cum-tax and ex-tax rates of (exponential) growth of property income, and r_3 and r_4 those for labour income. Since, from Fig. 2, $r_1 < r_2$, but $r_3 > r_4$, and average incomes have already crossed over by the time chosen, the expression for S will be less than unity (regressive incidence). However, the way in which t (that is, time period at which incidence is evaluated) enters into the expression for S shows immediately that the coefficient will vary in value as different time periods are chosen.[1]

Therefore, the static incidence coefficient (after the cross-over point to avoid that complication) will behave differently, according to the type of growth rates at which the income of sections of the community is, or is assumed to be, changing. So also will the dynamic incidence coefficient.[2]

These properties provide some interesting implications for current tax (or fiscal) theory and practice.

VI. Implications for Standard Incidence Theory

To take the theoretical side first, how does this incidence analysis square with current standard incidence theory? We have pointed out that this still confines itself to redistribution of levels of income, so only our remarks on the static incidence coefficient are directly of concern.

As formulated by Musgrave, the comparative static version of incidence will compare group income levels before the tax with those levels, *when all effects have worked themselves out.* Then a tax policy is said to have an incidence, progressive or regressive, of a given degree.[3]

In contrast to this, our analysis suggests that in a growing economy,[4] a tax policy may have a different incidence (different sign or different absolute value) according to the point of time, subsequent to the establishment of new equilibria, at which it is evaluated. Whether it does or not depends

[1] This result does not depend on the particular measure of incidence used. It could be demonstrated with the Lorenz-curve measure, referred to earlier.

[2] That is to say, the functions describing the time paths of the incidence coefficients will differ in form as the *type* of function describing income growth paths varies. These interesting topological issues will not be discussed in this paper, where only linear and exponential income growth paths will be referred to.

[3] Musgrave, *op. cit.*, pp. 209–10.

[4] Of course, the common distinction between "incidence" and "output" effects evidences that changes in national income have been visualised in the standard theory of incidence. But these "output" effects are again conceived as comparative static changes in income *levels* as a result of the tax. We now have permanently changing income, with or without the tax.

on the type of growth rates operative in the economy. The standard incidence formulation thus appears as a special case, true only when growth is of a certain kind. Furthermore, the special assumption required does not accord with the usual growth model formulations; it is usual to assume exponential rates of growth,[1] and in precisely this case we have seen that static incidence varies with time.

There are two possible counter-arguments to this criticism of the standard theory of incidence. First, Musgrave explicitly states [2] that the effects of a budget policy will depend upon the length of time that has elapsed since its inauguration. But he had quite a different matter in mind. Such points of time for him are mid-way in the adjustment period, and incidence varies because not all adjustments have taken place. We have definitely excluded this type of variation by speaking only of time *after* the point where new equilibria have been established (t_0 in Figs. 1 and 2). (This also excludes the dynamic case adduced by Musgrave of continuous failure to reach equilibrium.) No, the introduction of changes in group rates from one equilibrium configuration to another is something additional, and implies that there is no " final " or " ultimate " *incidence* of given order attributable to a budget policy.

The second escape from our criticism would be a claim that the static incidence coefficient was meant to relate to that point of time when adjustment processes had *just* been completed, when new equilibria had just been achieved. There are three points which, we would suggest, invalidate such a claim. (i) We can never know this point; any time chosen will, except by a pure chance, fall within the adjustment period (when we cannot determine *final* incidence) or after it (when incidence can be varying with time). A statistical measurement of incidence at any time would not indicate upon which period it had fallen. (ii) The change in income levels due to tax-actuated alterations in growth rates, one, two or three months after adjustment is completed, are as truly the " effect " of the tax as redistribution immediately upon adjustment. (iii) Sections of the community may re-establish themselves on equilibrium growth paths at different points of time after the tax imposition. Which is to be chosen as *the* point?

We have touched on the question of measurement above, and there is a further dispute in tax analysis to which we should relate our findings. This is the question as to whether the redistribution of income resulting from the total tax bill can be measured.[3] This is largely outside the scope of our

[1] That is, the " steady " rates of growth, of a constant percentage change per annum, taken at the limit as an instantaneous rate of change. For a reference to the type of growth assumed in growth discussion, see Harrod's recent review of growth theory, ECONOMIC JOURNAL, *op. cit.* We shall henceforward confine ourselves to the exponential case.

[2] *Op. cit.*, pp. 209–10.

[3] See Prest *op. cit.*; and A. H. Conrad, " On the Calculation of Tax Burdens," *Economica*, November 1955; also Prest's rejoinder, *Economica*, August 1956.

discussion; for one thing, we are only speaking of a single tax substitution. What we would emphasise, however, is that if static incidence concepts do not yield unique indicators of incidence, this is a question of principle, not of measurement; that unique measurements cannot be made is a mere corollary. Thus whether it is believed that "progressiveness," for example, is an operating tool or only a non-measurable concept, the remarks here are relevant.

VII. Implications for the Evaluation of Static and Dynamic Incidence

The determinants of static incidence include changes in sets of product and factor prices, as noted earlier, and a full exercise on the incidence of a tax would involve an empirical study of these changes, in so far as that was possible. What has been much more common in incidence discussion than such exercises is the deduction from assumptions of the *kind* of incidence (regressive or progressive) that general *classes* of taxes might be expected to produce.

However, when this deductive method was attempted for a growing economy the assumptions which it appeared reasonable to make, gave rise to something of an *impasse*. The findings on incidence in the previous sections of this paper will allow some progress to be made through these difficulties.

To explain briefly the difficulty which the current theory of incidence met, it was pointed out earlier that the changes in sectional growth paths due to a tax, as depicted in Figs. 1 and 2 in Section V, are changes from net disposable income ex-tax to net disposable income cum-tax. At that stage, we assumed that the rate of growth remained constant. But the total incidence may be composed partly of a change in the proportion of gross income paid in tax (henceforward called the "gross-net effect") and partly of a change in gross shares. For example, if the tax increases the overall rate of growth this may be of greater benefit to one section (in gross terms) than another. This second component effect of incidence may be called the "rate-of-growth effect." [1]

When the current theory of incidence was applied in a growth setting it was found, with reasonable assumptions, that these two effects always tended to cancel each other out.

For example, a tax on wages is replaced by a tax on property. This, in our examples, was static-progressive at t_1 in Figs. 1 and 2 in its gross-net effect (assuming wage income is associated with low-income groups as at t_1), but it is more likely to be static-regressive in its "rate-of-growth effect."

[1] Strictly, we should separate changes in gross shares due to the tax, with a constant rate of growth, and differential changes in gross shares, due to a change in the rate of growth. This refinement would complicate matters too much at present, so we shall tacitly assume that gross shares will not change if the overall rate of growth does not change.

This is the case making two reasonable assumptions: (*a*) that a redistribution of levels of income to poorer groups (through the gross-net effect) will decrease the level of savings, through their having a lower marginal propensity to save, and hence lower the rate of growth; (*b*) labour's gross share fares the worse as the overall rate of growth decreases.

Both assumptions are necessary to achieve this cancellation tendency of the two effects, and if one cares to assume either that: (*a*) the aggregate average propensity to save remains constant as group incomes change (as implied in the constancy of the savings ratio in the basic Domar growth model [1]); or (*b*) that gross factor shares will remain constant whatever the rate of growth, then the rate-of-growth incidence effect is neutral

However, though these escapes from the dilemma that standard theory faces in a growth context exist, we shall not take them. For it is possible to show that, even with the assumptions which give rise to the dilemma, some progress can be made towards making general, unequivocal, incidence statements when one class of tax is substituted for another.

We only have to recall our earlier insistence that incidence (static or dynamic) in a growth setting must be referred to a point of time. It can be shown that the tax which yields the conflicting effects just discussed (implicitly at one point of time) can yield an unequivocal incidence (by which we mean that the two effects reinforce one another) at another point of time.

Referring to Fig. 2, Section V, where earlier, the rate-of-growth effect was explicitly excluded, we have just seen that at t_1, its introduction tends to cancel out the gross-net effect. But now consider the point of time, t_3, on Fig. 2. The gross-net effect is regressive, since the incidence coefficient changes in kind after the cross-over point. The rate-of-growth effect is also regressive. For incomes are made less equal (compared with the ex-tax situation). This raises the level of saving and raises the rate of growth, which, by assumption, is to the advantage of labour. Labour, the richer section, is the relative gainer by both effects and the tax is doubly regressive.

A similar result can be obtained for the dynamic incidence concept. At t_1 the gross-net effect of the tax in question is regressive, as shown in the earlier discussion of Fig. 2, and as just stated for static incidence at t_1, the overall rate of growth is lowered. Which group will suffer the greater lowering of its rate of growth? Our assumptions imply that it will be labour, since the faster the rate of growth, the more favourable to labour. Hence, the rate-of-growth effect for dynamic incidence at t_1 is dynamic-progressive, for the faster-growing group is put to disadvantage. As with static-incidence at t_1, the two incidence effects tend to cancel each other out.

But at t_3 we shall find that the two effects reinforce each other in

[1] Note that Harrod prefers to postulate constancy of the average propensity to save as income varies. *Op. cit.*, pp. 454–5.

dynamic incidence, as was the case in static incidence. For at t_2 the gross-net effect is (still) regressive. And since the overall rate of growth is enhanced at t_3, as we discovered when evaluating static incidence, labour, the "richer" or faster-growing group, is put to advantage. This indicates dynamic-regressive incidence again; the tax is doubly regressive in dynamic incidence.

It would now be possible to proceed, as is common practice, by the deductive method, to classify taxes by their class of incidence; even to take into account the rate-of-growth effect which has hitherto had to be assumed away. But additional hypotheses are necessary. It is necessary to specify a time at which incidence is undergoing evaluation, and that time must coincide with a particular conjuncture of levels and rates of change of sectional incomes. For we saw that the possibilities of evaluation were quite different at t_1 and t_3, between which there had been a cross-over in sectional income levels, but not in sectional income rates of change.

We are now able to say that the incidence of a tax on property income replacing a tax on wage income is regressive through both incidence effects, whether we use static or dynamic incidence, at any point of time when the average level of wages is above the average level of property income and growing faster.

Many further statements in static or dynamic incidence of a similar kind, *i.e.*, unequivocal ones related to a point of time, may be made; they will vary with the tax substitution in question, the group income level and growth rate situation, and assumptions about the relative gainer as the overall rate of growth is changed.

VIII. Implications for Redistributive Policy

We hope to substantiate our suggestion that the foregoing analysis of the static and dynamic incidence coefficients bears some relevance to economic policy.

The redistributive function of the modern budget is, of course, a well-recognised, one, but how is it conceived? Taxes are sometimes imposed or changed, often for some other primary purpose, but with an eye to their "progressiveness"; for example, in Britain the graded income tax and differential-rate purchase tax are in this category.

But we have seen that the incidence of a tax will vary over time; it may be having a desired effect to-day, but have an "undesired" incidence some while afterwards. To achieve an objective continuously in a growing economy, a tax must have not merely a certain incidence, but a certain *incidence path*.

It will be clear that the incidence path that a redistributive tax ought to have will depend on two sets of considerations: first, how distributive shares are expected to behave in the growth process through market forces and the

non-redistributive part of the budget alone; second, how it is desired that they should behave.

For expected future behaviour of distributive shares, we can use results of theoretical discussion or extrapolation of past movements. The choice between the alternative hypotheses of constant factor shares and labour's share growing faster in the growth process has already been discussed. This section is not dependent on one view or another. The necessity for redistributive taxes with *required* incidence paths arises as soon as there is any discrepancy between expected and desired distribution, whatever either may be.[1] Let us pay more attention here to the desired paths, or the definitions of objectives. Just as we are implicitly assuming that, in the period ahead in which we are interested, the course of shares will remain as postulated, we shall consider *constant* objectives.[2] It is interesting to conjecture what these might be, since discussion of equitable income distributions has hardly been integrated with the economic reality of constantly growing real income. Some may desire a continual convergence of the growth rates of wage income and property income per head; some a steady withdrawal of the State from this function as the lowest incomes exceed, through growth processes alone, a generously-defined subsistence line, supporting this last arrangement as especially suitable to foster incentives to still faster growth. That is to say, whatever the ex-tax configuration of growth rates, the desirable pattern in a growing society might fall in the class of converging (the first view) or diverging (the second view) sectional growth rates. Perhaps, equal sectional growth rates (of net disposable income) is as good a working hypothesis as any.

How is a divergence between expected and desired distributional growth paths to be approached in practice?

The objective can, in principle, be expressed in terms of either the static or dynamic incidence coefficient. But, recalling our earlier discussion, the coefficient will almost certainly vary with time.[3] That is to say, a given

[1] One caveat to this statement should be entered. It might be held that, whenever tax policy attempted to change sectional growth paths to a desired pattern, market forces would re-adapt the situation to the original growth pattern. As far as gross factor shares are concerned, there would be a considerable weight of historical evidence for this view, in view of the tendency of shares to remain constant through decades of tax changes. But this relates to gross shares, and would simply imply for us that the rate-of-growth incidence effect was neutral, a matter discussed earlier. There is still the question of the path of sectional *net* incomes, and gross-net incidence; if market forces do keep gross shares constant this does not imply they will force the pattern of net shares back to the ex-tax level. The expected and desired paths here are to be interpreted as net income paths, and we have no reason to suspect that market forces would render a redistributive tax policy ineffective. Indeed, if gross shares do persist as constant proportions of income through profound tax changes, this itself suggests considerable changes in proportionate net factor shares, since the gross-net margin must have varied considerably.

[2] Of course, the objective itself will vary over time. But if we think in terms of changes of British Governments, we could probably regard redistributive objectives as constant during five-year periods.

[3] Except where growth rates are of certain kinds, described in Section V.

tax policy will be bringing divergent (or convergent) rates into equality (or into some other relation) if at periodic evaluations of incidence, it yields not a constant degree of "progression," but a series of results which satisfy the incidence function. In some cases, *e.g.*, when there are cross-overs, the necessary result will be of a completely different class, *e.g.*, "progressive" as against "regressive," at different points of time.[1]

Given the objective and "inherent" growth rates, the necessary function of time that the incidence coefficient must satisfy is uniquely determined, though it will depend on both the class of functions denoting growth rates and the value of the parameters of the actual functions within any class. Let us exclude the first type of variation by keeping to the assumption common in growth models of exponential rates of growth. The required path of the incidence coefficient is then, for the static coefficient, derived by letting t take integral values in the expression we derived in Section V in showing the variability of that coefficient.[2] Note that now the growth rate parameters r_2 and r_4, the growth tendencies, are derived from investigation, but r_1 and r_3 are derived from the objective (as a working assumption, we have taken $r_1 = r_3$).

So far, we have used only the static incidence coefficient. Alternatively, we could use the dynamic incidence coefficient. The advantage of explicit use of the static is that clearer relation is obtained to redistributive aims presently cast in terms of levels of income. The advantage of explicit use of the dynamic, however, is the reference to the essential growth aspect of the problem.

A brief recapitulation: what is the difference between a series of estimates using our formulæ, and conventional periodic evaluations of the incidence of a tax, which it is hoped is playing a particular redistributive role? It is that, given a constant redistributive objective, it would be wrong, in a growing economy, to require a tax to have a constant incidence in order to achieve it. Our formulæ relate the variation that an incidence measure must show to achieve the assumed, or any other, objective. But there is a further point to our discussion, which might interest those who think any attempted periodic statistical operations impossible or too troublesome.

This is uncovered once we ask: having an idea of the path our incidence coefficient must take for a certain redistributive objective, how do we achieve it? Every time the tax measure does not satisfy the equation it looks as if we have to change the tax. Are these repeated changes really necessary? No, for some taxes may have such a structure that they auto-

[1] Though with the objective of equal growth rates, the possibility of "cross-overs" is excluded.

[2] In the assumed case, the period of adjustment is instantaneous; it might appear that when an adjustment period is allowed for, we are faced with the same problem as the standard theory of incidence of deciding the point of time at which it is just complete. This is not so. The necessary condition, to operate with S, is not that we must know t_n exactly (when n is the length of the adjustment period), but only that $t > t_n$.

matically achieve, or approximate, that desired incidence path which suits a certain objective in a growing economy; this obviates both tax changes and statistical assessments. We are thus led to the important issue of *built-in redistributors.*

In the theory of income stabilisation it is well recognised that some types of tax policies have automatic stabilising tendencies. The analogy with built-in controls in the theory of incidence is not quite exact. In stabilisation the feedback features tend to return the system to equilibrium once it has departed from it. In the present case we require properties in a tax policy which tend to change one set of equilibrium group growth paths to another.[1]

But the result is the same: some tax-structures will tend to redirect the economy to the objective as conditions change, whether it be stable national income or a desired distribution, without change themselves; other taxes will require repeated changes in structure.

Let us be quite clear what features a " built-in redistributor " has. As relative group incomes change, it will yield a time path of the (static or dynamic) incidence coefficient which conforms with the distribution objective, without any changes in tax-structure.

A progressive-structure personal income tax would appear to approximate this feature if the aim is broadly constant shares. For as any group forged ahead in average income levels in the growth process, it would move into tax brackets with much higher average proportionate levies, which would tend to bring it back again to the common rate of growth of net income.

However, several qualifications are required. First, as emphasised in Section II, incidence is not directly inferable from the structure of a tax. It is therefore not sufficient merely that the structure be progressive to ensure the " built-in " effect. Attention has to be paid to changes in the variables cited in Section IV.

The second qualification is that, ideally, we should require rates continuously varying as income levels changed, which is an administrative impossibility. A structure with different rates in a finite number of income brackets will produce discontinuous curves for group net income growth paths with jumps at the incomes of bracket definitions.

These qualifications notwithstanding, a fairly efficient tool could be devised to go some way to achieving a " built-in " effect of equal growth rates in a growing economy. Up to now, " built-in " controls are more readily acceptable for stabilisation than for redistribution, but not for any apparent logical reason.

Naturally, the structure yielding the necessary incidence path will be

[1] The strict analogy in the theory of stabilisation would involve tax policies which automatically pushed the economy on to one desired equilibrium growth path of the many possible—a type of " built-in " effect not so far explored.

different according to the distribution objective. If we fully accepted the "minimum standards" objective (no State adjustment once all groups had a certain minimum average income), this implies a structure whose incidence is progressive until the floor is reach by all, then becoming neutral in incidence (incidence coefficient equal to unity), but becoming progressive should any groups fall below the minimum.

It is, in principle, possible to devise an income tax-transfer structure to satisfy any (relatively constant) objective. Remember we have available both static- and dynamic-structure taxes and transfers.[1]

As things stand in present-day fiscal policy, redistribution tends to be a sideline of taxes primarily designed for other purposes. Of major taxes, the present personal income tax will have some tendency to automatically equate group growth rates.[2] On the other hand, sales or purchase taxes have only the weakest "built-in" effects. This deserves some attention, since the differential rates of the British purchase tax imply a redistributive intent.

How does the purchase tax try to realise it? Low-income groups (say wage-earners) are favoured, in general, by lower tax rates on goods thought to bulk large in their expenditure patterns. But as their income grows, and possibly even outstrips the average income of property income receivers, there is only a "built-in" readjustment of overall rates of tax paid (and probably of incidence) if their consumption patterns change in an appropriate way (*i.e.*, negative or low positive income elasticities apply to low-taxed goods, whilst high-taxed goods are subject to high positive income-elasticities). There is no reason to expect this to occur in anything like a systematic way. It is clear that it would be much more difficult to devise a structure of purchase-tax rates for a "built-in" achievement of a distribution objective. We could not be sure that increasing incomes would move taxpayers into higher (overall) purchase-tax brackets, and there would be greater individual variation. But something of this sort occurs in a graded income tax, so there is a stronger presumption of a progressive incidence path in the income tax case than for the purchase tax.

Hence it appears that, in a growing economy, the purchase tax (and sales taxes generally) is likely to be less efficient as a weapon than income taxes to achieve a given redistributive objective, for their incidence may quickly become "out-of-date," and the tendency for them to readjust their own incidence automatically is weaker.

But this is to evaluate taxes as redistributors according to their "built-in" characteristics. Some prefer the necessity for active control over fiscal tools. But this is not a clear-cut issue of opposites. Obviously, even with

[1] See Section III.

[2] Though, of course, with no changes in rates or allowances, all pay an average rate which increases with time—but the increase is more than proportionately faster for those whose incomes grow faster.

" built-in redistributors," there would be need for changes in structure. For two reasons: it is not possible, in practice, to effect that structure which exactly achieves an objective; and, further, objectives will change over time. Hence, active control over redistributive tools is not eliminated, but reduced. It is reduced in the sense that fewer changes are required in tax-structures than if there are no " built-in " effects. We would regard this as a good fiscal feature, again for two reasons. First, frequent tax changes are administratively costly and inconvenient. Second, we are assisted in achieving society's redistributive objective by " built-in " features when we fail to perceive in time, as inevitable, the changing configuration of fortunes in the economy.

IX. Concluding Remarks

So long as the theory of incidence is confined to changes from one set of (implicitly permanent) levels of income to another, most of the matters discussed in this paper are concealed. In such conditions, if a tax is held to have a unique progressive incidence, of given degree, it will execute the desired amount of redistribution; and henceforward, it is implied, the new relative income levels will persist, and society's aims are permanently satisfied.

Only when growth is introduced do we see that incidence (and we now have a choice of a static and dynamic formulation) must vary in a given way to achieve a constant objective. We can, in principle, state the necessary variation for any objective. But how is it to be achieved? Some taxes tend to achieve it automatically, others do not. This difference in taxes, in respect of the distributive function of the budget in a growing economy, is obscured by the standard theory of incidence.

Douglas Dosser

University of Edinburgh.

STATICS AND DYNAMICS OF THE EURO-DOLLAR MARKET

WHILE economists are engaged in examining the possibilities of modifying the international monetary system, they appear to take little interest in a fundamental change that has actually taken place during the last few years. Yet the development of an increasingly important international market in "Euro-dollars" and other foreign currency deposits has created an entirely new situation in the world's foreign-exchange markets and money markets, with far-reaching effects on international movements of funds and on influences determining short-term interest rates. Although it has also far-reaching implications in the sphere of monetary theory and policy, until now such comments as have appeared about the new practice have been confined almost entirely to its more obvious practical aspects.

Readers of the financial Press are becoming increasingly familiar with the term "Euro-dollars," meaning dollars owned mostly by European depositors who re-deposited them with banks outside the United States. This practice, which developed mainly owing to the official limit imposed on deposit rates allowed by American banks, is not confined to dollar deposits. Similar restrictions, though unofficial, are also in force concerning sterling deposits in Britain, while there are bans on the payment of interest on foreign D.mark and Swiss franc deposits in Western Germany and Switzerland respectively. The markets in these and some other foreign currency deposits that have developed outside the countries concerned circumvent such controls, enabling depositors to obtain interest rates in accordance with supply–demand relationship. Until recently the existence of this practice had been ignored outside the quarters directly concerned. The Radcliffe Committee completely overlooked its existence. Yet it is important to realise that the tendencies in the new market have become a major influence in the international monetary system and are liable to react even on the domestic economies of the countries concerned.

The new system has important implications in the spheres of both static and dynamic theory. It goes a long way towards creating a truly international money market in conformity with the static assumption of a basic trend towards the elimination of discrepancies between interest rates in different countries. Thanks to the new practice, it has become almost as easy to borrow or lend in terms of the principal foreign currencies as in those of the local currency. The difference between having to negotiate such credit transactions specially and being able to conclude them in a matter of seconds in a market where the same dealers quote regularly interest rates for taking or giving foreign currency deposits is very important.

It is equally significant that, while the discrepancy between interest rates on debit and credit balances on *nostro* accounts of banks with their correspondents in foreign centres has always been something like 2%, that between rates quoted for taking or giving Euro-dollar or other foreign currency deposits is of the order of ⅛ to ¼% only. It means that frictional influences have been all but eliminated, so that, once the new system is fully developed, it should go a long way towards diverting surpluses of funds to countries where funds are deficient.

Gratifying as this progress towards an increasing internationalisation of the monetary system may appear, a close examination of the dynamic aspects of the new practice leads to some highly perturbing conclusions. The amounts involved—which are large and are increasing steadily—are held in a particularly loose and liquid form, and by their nature they are particularly suitable for being used for speculative and arbitrage transactions of a disturbing kind. Operations in Euro-dollars and similar deposits, instead of producing an equalising effect, are apt to produce in given circumstances exactly the opposite effect. Alternatively, their equalising effect is attained at the cost of disturbing effects in other directions.

The turnover in foreign currency deposits is liable to expand to a multiple of its present figure if in countries without exchange control domestic depositors too should discover the advantages of depositing their money with banks in foreign centres. It may mean that on the next occasion when the dollar comes under a cloud the pressure due to outward arbitrage and speculation with the aid of Euro-dollars will be much heavier than it was in 1960.

An at least equally perturbing aspect of the new development is that it tends to weaken the discipline enforced by the monetary authorities in their respective money markets and their influence on the volume of credit available for their domestic economy. Official efforts to keep money tight in Lombard Street can now be frustrated by an increase in the banks' liquid resources through the conversion of foreign currency deposits into sterling by means of swap transactions. This has been done so systematically in recent years that the market for such deposits has come to be looked upon as a rival money market to Lombard Street. Nor is the use of these facilities confined to tiding over a few days' money market stringency. It enables banks to expand credit over prolonged periods beyond the limit deemed advisable by the authorities. Although the process may tend to reduce discrepancies between interest rates in various centres, if such discrepancies are needed for setting in motion forces that would mitigate a disequilibrium between price levels in two countries then the result is on balance disequilibrating rather than otherwise.

It may be argued that the difference brought about by the new system is merely one of degree, since even before its existence banks had been in a position to replenish their resources with the aid of swap transactions.

Before 1957, however, the amounts available to them for that purpose were confined to their foreign balances (*minus* the amount that had to be left abroad for current requirements) and to such foreign bank credits as they were able to obtain. At present they have easy access to much larger amounts. All they have to do is to bid slightly higher interest rates for foreign currency deposits. This was done, for instance, in 1960 by London branches of Japanese banks, with the result that they were able to frustrate the Bank of Japan's efforts to keep down the volume of credit.

The official policy of preventing an unwanted influx of funds is also liable to be frustrated by the new practice. What is the use of forbidding the payment of interest on new foreign deposits in, say, Switzerland, if holders of non-interest-bearing deposits are in a position to obtain high interest rates by re-depositing their Swiss francs outside Switzerland?

A question which deserves careful consideration is whether, and to what extent, the new practice is liable to produce dynamic effects through credit duplication. If a French holder of dollars deposited with a New York bank re-deposits his holding with a London bank the dollars will remain nevertheless at the disposal of the American banking system as a whole, even if the ensuing transactions should result in their transfer to some other account or to some other American bank. The volume of American deposits remains the same, in spite of the fact that the volume of liquid resources at the disposal of the London bank has increased. Possibly the change means the conversion of a dormant account into an active account, in which case the velocity of circulation of the American deposits would increase. If Euro-dollars are used in such a way as to cause an increase of selling pressure on spot dollars it might lead to an outflow of gold from the United States, but even then it need not necessarily cause a contraction of credit corresponding to the expansion of credit in Britain resulting from the operation.

It may take some time before it will become possible, on the basis of more prolonged experience and careful thought, to reach definite conclusions about the expansionary effects of the new practice, but even at this stage it is safe to assume that it does produce some expansionary effect.

Against the disturbing dynamism of the system we must offset its constructive dynamism in the form of providing additional and cheaper facilities for financing international trade and, above all, of enabling the existing inadequate supply of monetary gold to serve as a basis for a larger volume of international transfers. Even allowing for these advantages, it is my contention that the growth of the system at the spectacular rate witnessed since 1957 should be discouraged. This could be done by the simple device of allowing deposit rates to be determined substantially by market mechanism with a minimum amount of interference in the form of restrictions on deposit rates. Such a policy would not eliminate the new market, for its development was due in part to causes other than artificial restrictions on deposit rates. Since the practice is established, it is likely to remain in existence,

even though the removal of artificial deposit-rate differentials would make for a less-spectacular growth, and the constructive dynamism of the system would not be outweighed by its disturbing dynamism.

The disturbing dynamism of the new system could and should be minimised, and its constructive dynamism assisted, by official intervention in the forward exchange market. If in 1960 the Japanese authorities found the influx of Euro-dollars inconvenient, they could have prevented it by widening the discount on forward yen, so as to make the cost of the swaps prohibitive.

For considerations of space I had to oversimplify all the above points, but I trust that even such a brief presentation of them gives an idea of the range of new problems which economists and policy-makers have to face as a result of the development of the market in foreign currency deposits.

PAUL EINZIG

Cliffords Inn,
London, E.C.4.

OWN RATES OF INTEREST

A RECENT article by Kaldor[1] revives interest in the mysterious chapter in the *General Theory* entitled "The Essential Properties of Interest and Money."

The basis of the problem that Keynes had in mind has to be deduced from his argument: it is not explicitly stated. It seems to be as follows. When the rate of growth of the labour force and technical progress are not sufficient to permit accumulation to go on indefinitely with a constant capital/output ratio, continued investment, raising the value of the stock of capital per unit of land and labour, must lead to a fall in the rate of profit to be expected on further investment. This Keynes merely takes over from orthodox theory and, for purposes of the present argument, we also may accept it without further inquiry.

Now, in his view, the process cannot be interrupted by lack of saving, for if investment takes place, savings to match it will be found, one way or another. But it may be held up by lack of willingness to lend at a rate which makes investment eligible.

Since the relations between saving and lending have been so much confused in the concept of "the supply of loanable funds," it is worthwhile to spell them out in a formalised case. Suppose that, over a certain period, schemes of investment in new productive capital, at a cost of X units in money terms, are to be carried out. At the beginning of the period the firms concerned either already own or have guaranteed access to X units of purchasing power. They know the return on that sum (which is zero in the case of their own cash reserves) to be sacrificed by drawing on their own resources, to be paid on loans or (less precisely) to be expected of them on new issues of shares, and they have already taken into account this cost in framing their investment plans.

If we could, so to say, stain that particular volume of X units of expenditure and trace it through its future course we should see it generating income and expenditure on consumption, gradually leaking into savings as it flows on its way. When the whole process has been completed there has been (if all has gone according to plan) an addition to the stock of newly created productive capital estimated to be worth at least X, and there has been an accumulation of additional new wealth and depreciation allowances of an equal amount. The process of investment, through saving, is always re-creating, with a time lag, the finance that it is absorbing. The new wealth has partly taken the form of gross undistributed profits of firms, and has partly accrued to rentiers. Some is held in cash, some in securities and some

[1] N. Kaldor, "Keynes' Theory of the Own Rates of Interest," *Essays on Economic Stability and Growth*, 1960, pp. 59–74.

has repaid bank loans. One way or another these X units of wealth constitute potential finance for another X units worth of investment. But the attitude of the present owners of the X units of wealth to providing finance may be more or less favourable than was the attitude of those who financed the last round of investment.

It is this question of the changing willingness of owners of wealth to supply finance, as total wealth accumulates, that Keynes is concerned with. He expresses it in terms of the rate of interest which will be required to pay for loans, and his argument is that the rate of interest may refuse to fall as fast as the prospective rate of profit on investment, so that the process of accumulation will be brought to a halt.

For my part, I find a sentence full of "own-rates of own-interest" and "own-rates of money-interest" peculiarly hard to read, and I do not see that this language is necessary. Look at the matter from the point of view of an owner of wealth, and consider the return that he may expect from various possible uses of it, assimilating, as Keynes does, the profit from an active investment in production with the return on a placement made by a rentier. The assets he may choose between offer, in various combinations, for any period of future time, q, the money value of the physical return on a productive asset (this may be a somewhat vague, but none the less real, quantity, such as the technical advantage of ample stocks of materials to a manufacturer); a, the expected rate of appreciation in the price of a physical asset by the end of the period; c, the costs of carrying the asset over that period; and l, the liquidity premium, which measures the pure advantage of owning it. The point about *money* (over and above what is required for the active circulation) is that, by definition, its q, c and a are zero. Thus, when the owner of wealth holds money, he gets no return on it except l.

To make the rates of interest fall as the rate of profit on new investment falls, the quantity of money must be increased. Keynes' argument is that beyond a certain point the other rates refuse to fall because of the competition from l, the liquidity premium on money. But l will not pay the grocer's bill. An owner of wealth cannot live as a rentier (except by gradually consuming his wealth) unless he can lend to someone who will pay him for providing finance. As the rate of profit gradually falls, the rate of interest obtainable on new savings falls with it. Conversions or bankruptcies reduce the income from old loans correspondingly. Owners of wealth who are saving have a gradually increasing total of wealth to place. As the income obtainable from property falls they must perforce offer loans at a lower rate, and since something is better than nothing, there is no bottom stop to the rate they will accept, provided that it is sufficient to cover the risk of default. If lending finally dries up it will be for lack of sound borrowers.

The point is clearly seen if we adopt Kaldor's emendation of Keynes' notation, and instead of giving money a positive l, the advantage of owning

a perfectly liquid means of payment, give all other assets an appropriate negative r, the risk attached to them of loss of value in terms of money. Then for money (whose r is zero by definition) the total return is zero. When there is no asset for which $a + (q - c) - r$ is greater than zero, that is, whose money return does not cover the estimated risk, investment comes to an end. Looking at it this way, the trouble is clearly seen to arise from the fact that no one is in a position to borrow (or to risk his own funds), rather than from anyone's reluctance to lend.

Keynes' conception of liquidity preference was invented to answer the question: Why does anyone hold wealth in the form of money, which yields no interest, when interest is offered on other assets? And the answer runs in very short-period terms, depending on the state of expectations in a particular situation. It does not pretend to answer the question: Why is anyone willing to offer interest? By thrusting it into a long-period situation in which the current and the expected demand price for finance have both fallen Keynes has strained it beyond its powers.

In the course of the argument he casually throws out a suggestion which appears much more solid. That is that there may have been times when the desire to hold land had the effect of starving productive investment of finance. Kaldor objects that this could not be so, because a rise in the purchase price of a physical asset can lower its yield to any extent. This argument may be correct if all land is already in play within the circle of capitalist-minded owners of wealth, and is regarded as nothing but an income-yielding placement, like any other. Keynes, however, may have been thinking of "historic environments" (such as, indeed, are to be found in many countries to-day) when the capitalist wealth-owners exist side by side with gentlemen, whom extravagance or misfortune from time to time forces to pledge their ancestral estates. The willingness of capitalists to lend on mortgage and to purchase land makes possible the dissaving of the gentlemen. Their expenditure may swell profits and saving in the capitalist sector; to keep the argument simple, we will postulate that the whole of their dissaving (as well as the equivalent of capitalist investment) accrues as saving within the capitalist sector. Then the X units of finance available at a particular moment may be divided into G, which will finance the dissaving of gentlemen by mortgaging land, and I, which will finance productive investment. After a time lag, $G + I$ has reappeared (on our assumption) as potential finance for another round, and will once more be allocated between the two forms according to their relative attractiveness to the owners of wealth within the capitalist sector. Now, so long as land is known to be safe and sound while all industrial investment has a high risk premium, and when, as Keynes assumed, the return to be expected in each round of I is less than on the last, lending to the gentlemen is a formidable rival to financing industry. In a very long run, no doubt, all the gentlemen will have been sold up, and this outlet for funds will come to an end. Mean-

while, however, it may be preventing industry from getting started at all.[1]

There may be another element in the problem. When there is a factor, g per acre, measuring the money equivalent of the pure pleasure to capitalists of owning land, then evidently it is an additional influence keeping up the cost of finance to industry. If we could see safe industrial investments promising $(q - c)$ equal to say 10%, while land offers 2% money return on its purchase price (a being zero in both cases), we can infer that g is equal to 8% on the purchase price per acre. Unfortunately, a perfectly safe industrial investment does not exist; there are two subjective, indecipherable elements in the equation, $-r$ for risk and $+g$ for the pleasure of owning land. We therefore cannot hope ever to be able to put an exact figure on the pleasure of gentlemanlikeness derived from owning land. The fact that a phenomenon is not exactly measurable does not mean that it is not important. In many economies to-day this problem is certainly a real one. Capitalist wealth is diverted to purchasing land at second hand which, if land had no g attached to it, would be more readily available to find an outlet in financing new investment.

This problem affects mainly countries in the early stages of capitalist development. There is a somewhat analogous problem in ripe economies. A take-over bid financed out of the profits of a successful business means a second-hand purchase of assets that already exist. The practice of making such purchases (like the practice of buying land from gentlemen) encourages and permits the sellers to consume more than their incomes, and so tends to reduce the overall propensity to save of the community; this is a serious problem in inflationary conditions, or when the balance of trade is a source of anxiety, but that is another matter. Here we are concerned with the question of whether this practice tends to keep up the cost of finance for constructive investment. To eliminate the effect upon thriftiness, let us suppose that the whole of the purchase price of shares subject to a take-over is held as wealth, in some form or other, by the recipients.

All wealth is potential finance. But there is a great difference in the quality of potential finance owned by different types of individuals and concerns. The very best kind, from the point of view of facilitating investment, is that which takes its origin in the retained profits of successful firms, and the worst that which has come into the hands of "widows and orphans" to whom every r (necessary risk premium) seems terrifyingly great. Take-overs often transfer the ownership of wealth from retained profits literally to widows and orphans, when a family business is sold up; in general, they transfer it to merely average rentiers. There is thus a leakage of the best kind of potential finance into inferior forms, and the payment required for finance for constructive investment is consequently kept up. To put the point in another way, in so far as the own finance of firms is absorbed by buying

[1] Professor K. N. Raj (in an unpublished paper) makes this point in connection with the loans of traders to peasants in rural India.

second-hand equipment, new equipment has to be financed by borrowing, which is more expensive and less eligible than an expenditure of own finance.

Second-hand assets may be a particularly eligible investment from the point of view of an expanding firm, because they are already run in and carry their goodwill with them, but from the point of view of the economy as a whole there is only a problematic advantage to be gained from reorganisation of the business, while a new constructive investment (if it is reasonably well conceived) adds more or less the equivalent of its value to real productive capacity.

There is no need to resort to Keynes' hypothesis of a long-run fall in the rate of profit on investment to show that this is a serious problem, for when the habit of making take-overs is spreading, it reduces the supply of finance for real investment, even when the prospect of profit is constant.

JOAN ROBINSON

Cambridge.

REVIEWS

The Stages of Economic Growth. A non-communist manifesto. By W. W. Rostow. (London: Cambridge University Press, 1960. Pp. xi + 179. 21*s*.)

This book belongs to the honourable genre of literature, of which in economics Malthus's *Essay on Population* is the most eminent example, which attempts to sweep wide tracts of human experience into a few central categories. Professor Rostow's categories are now well known: traditional society, the preconditions for take-off, the take-off, the drive to maturity and the age of high mass-consumption. "These stages," writes the author, "are not merely descriptive. . . . They have an analytic bone structure, rooted in a dynamic theory of production." This is a mistaken view. The book contains some ideas on how one stage proceeds to the next, but they do not cohere into anything which could reasonably be dignified as a theory of production. The work is essentially an essay in classification.

The notion that there are similarities between the process of growth in different countries and periods is, of course, a familiar one. We know that certain conditions were more favourable to growth than others, that growth started in limited sectors and then proceeded on a broader front, and that as incomes per head rose there were changes in the relative importance of different types of economic activity. What Professor Rostow has done is to systematise such similarities, link them with certain political and social choices, and dramatise them. Though the criteria by reference to which his stages are derived are not easily identifiable, most people can easily recognise a traditional society and an age of mass consumption. But the three intervening stages are less self-evident. At the centre of the argument is the assertion that there is one short interval in the history of a society in which changes take place which ensure that growth becomes the normal condition of that society. "In a decade or two changes take place which ensure that henceforth both the basic structure of the economy and the social and political structure of the society are transformed in such a way that a steady rate of growth can be thereafter regularly sustained." Whether there were periods so critical and so precisely compressed in time is a question of fact, and I can only say that I do not believe that the European experience conforms to this pattern. Growth has been more rapid in some periods than in others, and some innovations, for example the railways, have had much more profound effects than others; but I see no evidence that there has been one, and only one, decisive phase in the history of each growing economy.

The preconditions also present difficulties. The first requirement of a precondition is surely that it should occur first in time. But in England the

principal changes in transport and in agriculture took place during rather than before the period of accelerated growth; in Russia the relevant agricultural developments occurred late in the decade after the take-off had got under way, and in China they are occurring in the middle of the period to which Professor Rostow assigns her take-off. In many cases the increase of agricultural output and the creation of overhead social capital are not conditions whose pre-existence explains the acceleration of growth; they are part of the acceleration which needs to be explained.

And what meaning is to be attached to maturity, the stage that lies on the other side of the take-off? This is defined as " the period when a society has effectively applied the range of (then) modern technology to the bulk of its resources." This is an imprecise definition, for, except in a purely geological sense which does not seem to be what is intended, the " bulk of a country's resources " has no clear meaning independent of the level of technology; and, except in the purely engineering sense, one cannot define " modern " without reference to the factor endowment of the economy. But in a rough-and-ready way one can see what the author means. What is surprising is that he should extend this already protean definition to cover societies which he acknowledges contain large technologically backward sectors. Such an extension is apparently legitimate where the backward sector is geographically concentrated (the southern states in the United States) or is due to rapid population increase (Japan) or results from political decisions (the U.S.S.R.). Britain arrives at maturity about 1850 without the aid of any such exegesis, though very large sections of the economy were then technologically backward, however this term is defined. Moreover, while as a general rule the drive to maturity comes before and leads into the age of mass-consumption, Canada and Australia have entered the stage of mass consumption before reaching maturity. Is a stage which needs so much bullying really worth having?

The attempt to relate the stages of growth to political developments leads to further stretching of categories and straining of facts. Thus among the wars of regional aggression, which arise " out of the dilemmas and opportunities of men, risen to power on the banners of independence, trained as politicians and soldiers, but now facing responsibility for a turbulent transitional society," Rostow includes, *inter alia*, Bismarck's wars of 1864, 1866 and 1870, the Russo-Japanese War of 1904–5 and the wars of the French Revolution. With enough thought it is possible to find resemblances between the most improbable people, but I should have thought that between few groups in modern history was there less resemblance than between the men of 1792 and the rulers of Russia in 1904–5. Moreover, though these wars of regional aggression are said to have arisen " directly from the dynamics of the preconditions period," two of them in fact fall about the middle of the take-off period.

But this book is aimed at the future, not the past. The power of its

system lies in the metaphors with which it is expounded. There are continual references to "societies building compound interest into their habits and institutions," to "the onward march of compound interest," a shorthand way, the author explains, of suggesting that "growth normally proceeds by geometric progression." Taken literally, this appears to mean that growth has normally taken place at a constant rate which is not true; if it is not to be taken literally it is merely a misleading way of dressing up the platitude that growing societies grow. There are also references to "self-sustaining," "self-reinforcing" and "on-going" growth. This is not, so far as I can see, anything more than growth of the plain straightforward variety; but the adjectives seem to offer an assurance that once one or two critical decades are over a society can rely on automatic growth to carry it forward into the age of motor-cars and television sets. On many occasions, it is true, Professor Rostow is at pains to insist that he is not describing a single rigid pattern of growth; but none of his reservations blur the impression, sanctioned by the vivid and categorical chart which prefaces the book, that, after the take-off, the coming of the age of universal mass-consumption is as inevitable as the victory of the proletariat was in Marx (though as in Marx we shall have to work hard to ensure that the inevitable actually happens). And this is the impression the author clearly means to give; "in the end," he concludes, "the lesson of all this is that the tricks of growth are not all that difficult." This may be so, but it can be presented as the verdict of history only by concentrating on the success stories: there have been bump downs and even crash landings. After reading this book we are no better able to judge whether in any particular case the "tricks of growth" are going to work successfully. Though in the text the approximate date of the Turkish take-off is given as 1937, a footnote declares that—almost a quarter of a century later—it still remains to be seen whether Turkey has made the transition to self-sustaining growth. The take-offs can only be confidently identified retrospectively; one can only tell if growth is going to be self-sustaining if in fact it has been sustained for a long period.

It would be surprising if a book by Professor Rostow did not contain many acute insights; and along with the characteristic vices of the system-builders—the recourse to metaphor as a substitute for explanation, the readiness to disregard exceptions and force resemblances—this work exhibits the brilliance characteristic of its author. There are, for example, some penetrating pages on colonialism, and a highly original analysis of why post-1945 has been so different from post-1918. Few of his insights seem to me to depend on the stages of growth, but it may fairly be retorted that it was in the course of elaborating these stages that Professor Rostow had these insights. The book may well be influential as a manifesto; the stages of growth are intended "to challenge and supplant Marxism as a way of looking at modern history," and faced with this alternative I would readily agree that the Rostovian stages are very much less misleading than "feudalism,

capitalism, imperialism and socialism." But the virtue of a system is not to be judged by its power to establish itself as a mnemonic. Nor by its random shafts of light; any system will yield fresh views because it compels one to group facts in unaccustomed ways, and often the most arbitrary system yields most because the gap between expectation and facts is so challenging. The test is whether the system makes the past more intelligible and the future more predictable. Professor Rostow's schema does not, in my view, succeed in doing either.

H. J. HABAKKUK

All Souls College,
Oxford.

Economic Doctrines of Knut Wicksell. By C. G. UHR. (Berkeley and Los Angeles, California: California University Press (London: Cambridge University Press), 1960. Pp. xv + 356. 60*s*.)

WICKSELL has been receiving a good deal more attention in the last few years. The Royal Economic Society published Professor Kahn's translation of *Interest and Prices*, it is true, in 1936. But his first major work, *Value, Capital and Rent*, appeared in English translation only in 1954. Four years later Professor Gårdlund's charming biography came out, and the late Professor Lindahl edited a volume of translations of selected papers on economic theory by Wicksell. Now Mr. Uhr, an Associate Professor at the University of California, has produced this enormous survey of Wicksell's work. Thus, about half a century too late, English-speaking economists no longer have any excuses left for ignoring Wicksell's major contributions to economic theory.

After a brief chapter on Wicksell's life, the author surveys these contributions. Wicksell was one of the founders of the marginal productivity theory, he revised and reconstructed Bohm-Bawerk's capital theory, he was the first among modern theorists to subject the question of distributive shares to rigorous analysis, he originated the savings–investment approach in monetary theory, he was one of the first to develop a real-investment explanation of the cycle, and he advanced the pure theory of public finance.

These topics are then taken up one by one in the succeeding chapters. The author is thorough, but not exhaustive. One can hardly blame him for this, however, for Wicksell was a very prolific writer and produced some unimportant articles as well as important ones. Perhaps the least important he ever wrote was the curious piece entitled "Milch cows as draught animals." He had been reading about German agricultural experiments in order to obtain empirical evidence concerning the laws of returns and chanced to learn that if cows were used to provide motive power, the adverse effect on milk yield was more than offset by the rise in the fat content. This excited him so much that he felt impelled to communicate the fact to his fellow-countrymen through the medium of the (Swedish) *Economic Journal*!

The historian of pure theory has, it may be suggested, three linked tasks. First, he must set the scene for his hero by explaining the state of the subject before his hero developed it, which means that he has to spend a good deal of time on other authors as well. Second, he has to describe and explain just what his hero did (or failed to do) in terms of the concepts and approach which his hero used. Then, third, he should turn a contemporary eye upon all this and explain what we think about it now—do we accept it or was it wrong or has it been forgotten?

So far as I can judge, Professor Uhr performs the first of these tasks well and the second admirably. Indeed, he sometimes sorts out matters which Wicksell left obscure, whether through excessive brevity, incompleteness or error. One major example of this is his lucid and systematic explanation of Wicksell's concept of capital structure, which is actually longer than the passage in Wicksell's *Lectures* to which it relates. Another example is his explanation and amendment of the model of the cumulative process in *Interest and Prices*. In these parts of the book Professor Uhr has made contributions of his own.

When he comes on to monetary theory, Professor Uhr finds it necessary to describe Professor Davidson's views on monetary theory in order to survey the controversy between Wicksell and Davidson. Here, for once, Professor Uhr becomes incomprehensible, though it seems to me that the fault is Davidson's, not Professor Uhr's. If he understands what Davidson was getting at, which is doubtful, he should have communicated that understanding, and if he does not he might have said so.

What about the third task? Here I think that Professor Uhr has missed one or two chances in the chapters on monetary theory. For one thing, he might have made more of Wicksell's ideas on international currency problems. Again, it seems peculiar not to discuss Davidson's norm of monetary policy in terms of stabilising factor prices. More important is his failure to deal with one particular problem in modern terms. This is Wicksell's indecision as to whether or not those price-level changes caused by gold discoveries which increased exports and by government spending financed by money-creation fitted in with his formula of divergence between the normal and money rates of interest. The problem is resolved if we reflect that in an open economy with a government, the relation between aggregate supply and demand is not just a matter of saving and investment, but also of exports, imports, government expenditure and taxation. Thus the normal rate of interest has to be redefined as that which makes: Domestic Investment + Exports + Government expenditure = Private Saving + Imports + Taxation. This deals with the theoretical problem, though not the empirical one of the magnitude of the relevant interest elasticities.

R. Turvey

London School of Economics.

The Rise of the Marginal Utility School, 1870–1889. By R. S. Howey. (Lawrence, Kansas: University of Kansas Press, 1960. Pp. x + 271. $7.50.)

Professor Howey sets out to show how the theory of marginal utility was developed in the twenty years 1870–89. He deals at considerable length with the work of Jevons and Walras, and rather perfunctorily with that of Menger; each of whom worked independently of the others, and also without knowledge at the time of their earlier precursors in this field, such as Richard Lloyd, Gossen, Dupuit and Richard Jennings. He accords some originality to Edgeworth (with some interesting comments on the part played in his formulation by psychophysics); and concedes rather grudgingly the *probability* that J. B. Clark had worked out the idea for himself in 1881. On the other hand, he remains sceptical of Marshall's claim (made in correspondence) that he had arrived at the idea of marginal utility before the publication of Jevons's *Theory of Political Economy* in 1871. But the reasons he adduces are not by any means convincing. Thus, he doubts whether Marshall could have devised the concept from Cournot, since " a revival and extension of Cournot would not require at all the use of marginal utility," forgetting that elsewhere in dealing with Menger he himself says, " Of course Cournot did not use utility itself in his analysis, but he did use derivatives freely, and the first derivative of a function gives the essence of the idea of *marginal* utility." Further he denies Marshall's own explicit statement that he had got " marginal " from von Thünen's *Grenze*, partly on the inadequate ground that von Thünen never used the German equivalent of the adjective " marginal "; and partly owing to his own mishandling of a footnote in Marshall's *Principles* relating to his indebtedness to von Thünen. The fact that Professor Howey's main period ends at 1889 absolves him from giving any account of the treatment of marginal utility in the first edition of the *Principles* in 1890, and all he has to say on this is contained in two lines at the end of a fairly lengthy chapter entitled " Alfred Marshall," which runs: " Marshall's *Principles* contributed as much as did any one other book to embed the idea of marginal utility in the general body of economic thought."

Professor Howey's own standpoint is nowhere made clear. He seems to be concerned only with marginal utility as a concept and not with its role in the theory of value. He never defines what he means by " The Marginal Utility School "; and he makes no comment on the contention of Jevons and a number of the Austrian economists that value depends fundamentally upon marginal utility as the ultimate determining cause; though he does admit that Jevons and Walras were on the wrong track when they tried to bring average utility into the picture.

The interest of this book lies in the by-ways rather than the highways of the history of economic thought. He credits von Wieser with being the first economist to use the term *Grenznutzen* in 1884, and Wicksteed, in his

Alphabet of Economic Science (1880), as the first English economist to substitute "marginal" consistently in place of the Jevonian word "final." But the *Alphabet* was, and remained, virtually unreadable; and it was Marshall's *Principles* which anchored the term in economic usage.

Professor Howey gives an entertaining account (from his particular angle) of the Economic Circle which later became the Royal Economic Society, and which included among its members Foxwell, Edgeworth, Wicksteed, Sidney Webb, Graham Wallas, Bernard Shaw and Alfred Marshall. He shows how Wicksteed converted Shaw to a belief in the validity of Jevons's marginal utility doctrines, a belief which Shaw used to good effect in controverting the labour theory of value upheld by Hyndman, the leader of the Marxist Social Democratic Federation. In fact, Professor Howey says of Shaw's essay in the first series of Fabian Essays (1889) that: "All in all Shaw gave here a compact, clear exposition of the relation of marginal utility to the theory of value at a time when a reader could find few other expositions"; and he records Shaw as saying to his fellow Fabians in 1887: "My last word for the present is—Read Jevons and the rest for your economics; and read Marx for the history of their working in the past, and the condition of their application in the present."

In the latter part of his book the author traces the slow and gradual stages by which the concept of marginal utility came into prominence as a major element in economic thought. He seems to have read much of the work of even obscure and long-forgotten economists in most European countries; and his notes at the end of the book constitute a useful bibliographical record—if only in saving others from what must have been for the most part an exceedingly laborious and tedious task.

C. W. Guillebaud

St. John's College,
Cambridge.

Theory of Wages and Employment. By A. M. Cartter. (Homewood, Illinois: Irwin, 1959. Pp. xii + 193. $5.00.)

Wage Determination and Wages Policy. An economic monograph. By C. W. Guillebaud. (Welwyn: Nisbet, 1960. Pp. 31. 2*s.* 6*d.*)

The Wage–Price Issue. A theoretical analysis. By W. G. Bowen. (Princeton, New Jersey: Princeton University Press (London: Oxford University Press), 1960. Pp. xv + 447. 68*s.*)

An Approach to the Theory of Income Distribution. By S. Weintraub. (Philadelphia, Pennsylvania: Chilton Company (London: Bailey & Swinfen), 1958. Pp. x + 214. 52*s.*)

It is at last becoming clear how deep the poison runs in the veins of a society when inflation has had time to take hold on the mental habits and instinctive assumptions of its people of all kinds. In Britain it was for many years after the war a standing mystery that people should be willing to lend

at 1 or 2% per annum (after tax) to a Government which was debasing the currency at a rate of 10% per annum. Of all the wastes and follies which recent British Governments have been guilty of, the most atrocious perhaps is their casual, cynical and careless destruction of the Gladstonian good repute of the British Treasury. The scales fell, it seems, quite suddenly from the eyes of the saving public, and they realised with a long-delayed shock that Treasury 2½ per cents bought at 100 in 1946 were standing in the 1960s at 43, having a *real* value of a quarter, or less, of the sum originally paid for them. No wonder that nowadays a Woolworth share yields 3% while the British Government must pay 6%. Our currency may well be in greater danger now of going right over the inflationary brink into the pit of total worthlessness than it has ever been before. The past two years of fairly steady retail prices have led to claims that inflation has been stopped. If now it starts again, all belief in the Government's control over affairs will vanish, and the scramble to defend real incomes by wage claims and the hurried purchase of property of any sort will drive prices up without limit. The econometrists long ago found two phases in the total, catastrophic inflationary process such as that of Germany in 1923. The first phase is gentle and apparently controlled, the second sudden in its onset and utterly beyond restraint in its ever-accelerating destruction of the currency. The mechanism of the slow phase is often referred to nowadays as the " vicious spiral " of wage-push and demand-pull. It is illuminatingly discussed in all four of the books under review.

Mr. Allan M. Cartter has most admirably brought together the principal strands in modern economic theory which bear upon the wage-and-employment problem, and has spun them into a very serviceable thread which will guide the beginner and even the advanced student through this mazy territory. His book is more than a synthesis, and besides a very skilful arrangement of the pieces of the puzzle, which gives them a far greater air of belonging together than most text-books manage, his bold virtuosity with the indifference map is exciting and original. The indifference map is an old story, but capable of ever new surprises in the amount that can be wrung out of it. For this, the reader must sometimes help by using his sympathetic imagination: Mr. Cartter will repay him.

One of the book's chief merits is its repeated insistence on winning the reader to grasp the nature, function and necessity of theory and abstraction. The author explains and drives home the underlying validity and dominance of the marginal productivity principle. He shows why we cannot fully understand the distribution of aggregate income (or any other economic problem) without a *theory*, general, long-run and basic. It is all the more pity that in this foundation-laying part of the book he has thrown his reader into imminent peril of great confusion. The total differential of a continuously differentiable function of two independent variables, on the one hand, and Euler's theorem for linear homogeneous functions, on the

other, are perfectly distinct and separate ideas. A production function, showing the dependence of the quantity of product on the quantities of two factors, is for analytical purposes conveniently treated as continuously differentiable everywhere within the practically important region, and so we can always apply to it the well-known expression for the difference made to the quantity u of product by simultaneous changes dx and dy in the quantities of the two factors. Such a production function may or may not be linear and homogeneous. If it is not, Euler's theorem does not apply to it, although at particular points, such as those corresponding to the highest return per unit of factor to factors applied in some one or other fixed proportion to each other, it may still allow the total product to be precisely exhausted by paying each employed unit of each factor the marginal physical product of that factor. If, then, we write the formula expressing such exhaustion, we may be expressing the *identity*, concerning linear homogeneous functions, which is embodied in Euler's theorem, or we may be stating a *test* by which the points of some function, which is not linear and homogeneous, are to be accepted or rejected. One cannot feel that Mr. Cartter's readers, if they come to these matters unprepared, will get them clear from his account, which could have better served the resolute enquirer by displaying, at least in a footnote, the formulae concerned. Some such enquirer might ask: Suppose the firm spends a marginal £N a week on extra quantities of two factors of production, so that marginal quantities of these factors are added, in a certain ratio to each other, to the quantities already engaged, is it true that the resulting marginal physical product will be, to as close an approximation as we like, equal to the sum of two multiplications: marginal physical productivity of x times marginal quantity of x plus marginal physical productivity of z times marginal quantity of z? Yes, it is true, provided the partial derivatives exist and are continuous. But this has nothing to do with Euler's theorem.

Once past this chasm, Mr. Cartter's book goes from strength to strength. He explains with patience and with impact such vital, but to the beginning student often puzzling, things as that for the *firm*, the marginal productivity principle is an *employment* theory: for the economy as a whole it is a *wage* theory. He has such admirable statements as: "To approach any theory, however, demanding that all appropriate assumptions be precisely and invariably true is to deny the existence of any meaningful generalizations." Convincing, realistic application of theory to the phenomena is exemplified in the analysis, on p. 40, of the employer's ascription of what is really a wage-change effect to a "change in demand for his product."

It is, however, when he comes, in Part II of his book, to apply indifference-curves to the analysis of bargaining between trade-union and employer that Mr. Cartter becomes the masterful and resourceful manipulator of a technique which he evidently delights in. Set upon his path, it seems, by one diagram of Professor Fellner's, he champs the bit and takes us over a Grand

National course of varied and exciting figures, leaving his reader a little breathless, a little anxious to go back and see if all those jumps were cleanly taken, but full of admiration for a virtuoso.

One cavil must be allowed to the reviewer regarding the discussion of the bargaining process itself. On pp. 119 and 120 Mr. Cartter fails to let bygones be for ever bygones. When either party to a bargaining process looks forward, from the *start*, and reckons the cost of such and such demands if a strike results from them, that is one question. But when the strike has begun, and has gone on for a fortnight, the cost of sticking out does not include the loss or outlay *which has happened already*. The proper allowance for that is to be made in reckoning how much of the fighting fund is left. Even if a million has been spent on a six-week bus strike, still, if one more day will bring victory, the cost, *at this stage*, of victory is the expense of one day's strike, not of six weeks plus one day. (It is because the "one more day" judgment can be wrong that strikes drag on and on.)

But never mind. There are more good things to come. On p. 119 the recognition that two different horizons may be appropriate for the trade union and the employer respectively, when each seeks to capitalise "the costs of agreeing" to the other's demands, is a typical minor excellence of the work. The final chapters consider with brief clarity two great matters. In the economy taken as a whole, all at once, what is the relation of wage-rates to employment? And similarly, what is the relation of wage-rates to labour's share of the national income? On the first of these, the essence of Keynes's theory is swiftly indicated by an author who really understands it (p. 136 is a typically admirable passage, so are the first three lines of p. 137) and is contrasted with Patinkin's study of the matter, relevant to a different, long-period context. On the second question, the author outlines a theory of his own which has the supreme merit of incisive simplicity. Theories cannot enable politicians to *predict* the detailed outcome of their policies; theory can only give them a justified sense of not acting in utter darkness. A simple theory does this better than a too complex and too subtle one.

Excellently useful as it is for the student at many levels, Mr. Cartter's book is much more than a text-book. It has much originality in the audacious handling of diagrammatic tools and in its power of synthesis, and it has the very great merit of a true insight into the nature and necessity of theory for the whole of economics.

Mr. Guillebaud's lecture on *Wage Determination and Wages Policy* is a model of how to present economic ideas to those who, while vitally concerned to understand and apply them, have no past background and no present time for grappling with technical intricacies and what Mrs. Battle called "The rigour of the game." Mr. Guillebaud shows, in terms that anyone can follow, what circumstances govern the size of the total stream of earnings measured by what it can buy. To make each man's absolute share of this total permanently larger, we must bring it about, by saving and investment,

invention and incentive, that men on the average can each produce more, so that the total grows faster than the number of men. To raise merely their *money* wages, without a corresponding growth of their aggregate product, is simply inflation, which unfairly benefits some citizens by unfairly hurting others, and which renders inefficient the whole economic "communications system" of prices, markets and money by which, broadly, resources are directed to produce those things that people want. In this simple, succinct and down-to-earth way Mr. Guillebaud shows that logic is always relevant. Like Mr. Cartter, he thus insists, by implication, on the inescapable relevance of theory; facts may be hard, or cold, or what you will; but in the nature of things they are related to each other; get between them and they will squeeze you in a way that it is the job of *theory* to describe. Why not ignore theory? Well, why not ignore the multiplication table?

In 1951 Mr. Guillebaud was hopeful of the Swedish and Dutch experiments in a general get-together system of wages regulation, whereby trade unions, employers and the Government sought to limit general wage-increases to what growth of productivity would make sense of. In 1959 he was much less hopeful. "A wages plan" sounds so obvious a thing to go in for. If we have troubles, let us consciously try to cure them, let us be systematic and comprehensive. But such a plan must be devised and administered by *someone*: if it operates effectively, it will appear as a mere arbitrary exercise of authority:

> "It would have to be clearly recognised that it is beyond the wit of man to devise scientifically chosen rules, based upon clear-cut economic principles, in accordance with which a wages-policy could be carried out. I feel tempted to suggest that this need not prove an insuperable objection in the case of so empirically-minded a people as the English, though I must admit that the Scots might be a tougher proposition."

What Mr. William G. Bowen refers to as the "dilemma model" is not a model in the modern sense of an axiom-system from which further insight can be obtained by logical inference or mathematical manipulation. His dilemma model is simply the proposition that in these days an economy like that of Britain or the United States must choose between a continual rise of the general price level or a degree of unemployment which would be politically dangerous to the party in power. Mr. Bowen's purpose is to show, by an exhaustive examination of the intricate economic, psychological, political, institutional and administrative web of inter-dependencies and feed-backs, how dangerously tempting it is to over-simplify the whole problem of inflation and particularly its wage-and-price aspect. His book is admirably organised in the large and in the small, and the plan is executed with a tenacity that the reader may have some trouble in matching.

The "dilemma model" makes three assertions. First, trade unions cause the rise of money wages to outstrip that of the productivity of labour.

Secondly, prices of products are raised when labour-costs per unit of product rise. Thirdly, if the monetary authority tries to stop the wage–price spiral by refusing to increase the quantity of money, the only result will be unemployment. Thus, "free collective bargaining, stable prices and full employment are incompatible."

Mr. Bowen examines this argument with impressive patience and erudition, and constantly sustains the reader's trust in his judgment by applying all those criteria which mark the natural-born economist. He is alive to the "organicity" (not his word) of economic life and structure, the meaninglessness of asking (save on rare occasions) whether the egg of cost-push or the hen of demand-pull comes first, the naïveté of seeking a single "villain of the piece." Quite in contrast with the belief which American writers sometimes convey, that all problems are solvable if only logic, energy and the latest gimmicks are applied, he shows a most refreshing scientific scepticism in analysis and caution as to remedies. If only his book were less prodigal of words, it might get into the hands of politicians and journalists and teach them that "To assume that whenever the existing conglomeration of institutions provides less than 'perfect' results some modification must be made is surely to misunderstand the nature of the world we live in."

Mr. Bowen's conclusions, however, are not merely negative. His main discovery, I think, is that—

> "the real source of significantly large wage-increases is the existence of certain 'potent' or 'deadly' groupings of wage-determining factors. To illustrate, large productivity increases by themselves may not be overly significant, but when they are combined with an aggressive union, a high capital-to-labour ratio, and little price competition in the product market, but sufficient non-price competition to encourage the maintenance of production at almost any cost, sizeable wage increases are likely to result."

An excellent book though diffuse.

Professor Sidney Weintraub has performed a highly important analytical and expository task by means of an original technique, in a book whose thoroughgoing exactness, careful step-by-step exposition and many-sided insight are impressive. His purpose is to relate the traditional analysis of income distribution at the firm and industry level, where it is really an aspect of Marshallian "partial" analysis, to the Keynesian framework of aggregative ideas which radically alter our conclusions. His method requires patience and close attention from the reader, who, however, need never fear that any rung of the ladder of argument will be missing or any step slurred in exposition. Professor Weintraub possesses what is still, even after twenty-five years, comparatively rare: a true grasp of the inner spirit and drive of Keynes's vision. The method here adopted is to break down what is essentially a many-variable inter-dependence into "fields" of two-dimensional diagrams. We have, in effect, the full and rounded loaf cut

up into slices whose outline we can inspect more easily than if we were required to study the loaf "solid." In fact, of course, the diagrammatic method is only practicable and really helpful in two actual dimensions, even if we squeeze into them the meaning of three, as in the indifference-map. Three-dimensional perspective drawings are something of a headache, and for four and upwards we are reduced to algebra, anyway. But diagrams have one tremendous and inalienable advantage over complicated algebraic expressions: they give a vivid, synoptic image of the whole (relevant) course of a function with all its subtleties in a single glance. To follow Professor Weintraub takes energy and "*la longue haleine*"; but how else could he have done this job? He uses algebra and calculus, in small doses, to excellent effect and without pedantry. I warmly commend this book for the better students, and particularly for those studying alone, since for these only the very best in text-books will do.

These books, with all their penetration, rigour and thoroughgoing patient analysis, do not by themselves give us the key to understanding inflation or the means of stopping it. For inflation is a disease of society, a moral breakdown and not merely a technical miscalculation, still less an acceptable means to some of the more respectable of a politician's ends. Inflation is political, sociological, moral; it is a matter for the conscience of a people entire.

G. L. S. SHACKLE

University of Liverpool.

The Trade Cycle. (*Cambridge Economic Handbooks Series.*) By R. C. O. MATTHEWS. (Welwyn and London: Nisbet and the Cambridge University Press, 1959. Pp. xv + 300. 12*s.* 6*d.*)

THIS is an extremely useful and important addition to the series of Cambridge Economic Handbooks, though it is hardly so suitable "to convey to the ordinary reader and to the uninitiated student some conception of the general principles of thought which economists now apply to economic problems" as was the case with the earlier volumes in the series. The progress of thought on this subject has made it inevitable that the general reader and even the uninitiated student will have a pretty hard time in discovering what the economists are about.

Mr. Matthews, although he has written with great clarity, has maintained a high standard of precision so that shorn lambs will find the wind rather cold, especially perhaps in the formal treatment at the beginning of the book and in the chapter on the trend and the cycle. For the student who has some initiation into the subject, however, and perhaps for those general readers who are willing to take a good deal of trouble, this is an excellent account of where thinking on the problem of the trade cycle has got to.

The formal treatment of cyclical models at the beginning of the book shows a good deal of similarity to the work of Professor Hicks on this subject,

but with a preference for the modification of the acceleration principle into the more general "capital stock adjustment principle," which, however, gives broadly the same kind of mechanism. There is also greater generality in that replacement cycles, erratic shocks and Schumpeterian innovation cycles are admitted to the field of possibilities. Inventory cycles and cobweb cycles are also discussed, their relationships to the other mechanisms under review being clearly brought out.

In the first five chapters of the book, which provide this mainly theoretical treatment, there is little reference to actual experience (though some appeal is made to it in the discussion of inventory cycles, and the treatment is never entirely divorced from reality). The chapter on house-building comes very firmly down to earth, appealing to British and American experience while insisting that the building cycle is a particular case of a multiplier-capital stock adjustment cycle, which for special reasons has a long period. The chapter on consumption is similarly realistic, but that on money and finance (which admits the possibility of a purely financial cycle) is limited to the statement of possibilities rather than the appraisal of experience.

The two chapters which follow on the upper and lower turning-points are extremely useful ones, attempting as they do (especially in the latter case) to assess how far experience supports the thesis that the cycle is in its nature explosive but is confined between the ceiling and the floor. The following chapter on international aspects is similarly a mixture of theory and verification.

It is in Chapter Twelve, however, that the chief appeal to experience takes place. Here the author examines United States, United Kingdom and to some extent other experience, with a view first to seeing whether there have been systematic cycles at all, and secondly, to seeing how far the general notion of an approximately eight-year cycle with a shorter inventory cycle superimposed upon it is valid. Mr. Matthews has no doubt about the reality of the short inventory cycle in the United States (though he points out that it was rather unaccountably absent in the 1870s and in the 1930s and it has not, except perhaps since the last war, been a British phenomenon), but he makes the extremely interesting suggestion that the eight-year cycle is a myth. For the United States he suggests that an approximately twenty-year building cycle plus the inventory cycle adequately account for experience, and so far as the United Kingdom is concerned he points out that between 1870 and 1914 there were twenty-year cycles in home investment on which were superimposed long-term variations in foreign investment in such a way as to produce the well-known fluctuation of between six and eleven years' period in the economy as a whole. (It would be an interesting exercise to reconcile this finding for the United Kingdom with Tinbergen's conclusion that even if export of capital is taken as an external influence, the British economy in this period still showed a tendency towards a fluctuation of about seven years duration.)

The penultimate chapter on the trend and the cycle is one of the more difficult ones, but also one which is welcome as an attempt to reconcile cyclical theory not only with a simpler version of the theory of secular growth but also with capital theory and the laws of returns. The suggestions about the way in which the natural rate of growth is itself influenced by the actual rate are also extremely interesting. The final chapter on policy for the control of the cycle contains no great surprises, but is a useful assessment in the light of the earlier analysis of the methods which have been suggested.

After reading the book one is likely not only to agree with the author that the inventory cycle at least is likely to remain with us and that anti-cyclical policy generally is likely to demand more skill than governments have so far shown, but also to feel that in view of the forces which make for a limited degree of instability in modern economies we are likely to find before long that those who have regarded the trade-cycle problem in its more serious form as solved have been living in a fools' paradise.

A. J. Brown

University of Leeds.

The Control of Industry. By Sir Dennis Robertson and S. R. Dennison. (Welwyn and London: Nisbet and the Cambridge University Press, 1960. Pp. xiv + 162. 10*s.* 6*d.*)

This is a new edition of the well-known volume originally written by Sir Dennis Robertson in 1923. The earlier chapters appear to have been changed very little; the later ones have been modified so as to take account of recent happenings, and deal, for example, with the post-war increase in government intervention, with the nationalised industries and with the developing relationship between management and labour. The general structure of the book, and the characteristically attractive style in which it is written, remain the same.

It is not easy to define the book's subject matter. The title is likely to call to mind the apparatus of direct and indirect control which governments, more now than in 1923, exercise over industry; indeed, the fact that it is likely to do this is proof of the general acceptance that these measures of intervention have now obtained. In fact, however, that particular subject falls largely within the scope of the other volumes in the Cambridge series dealing with money, public finance, monopoly and the social services. The problem upon which this present book is to focus, according to its authors, is that of ensuring that " the men and women engaged in industry shall not become mere instruments of production or mere passive receptacles of its fruits, but shall retain, in their relation to the economic circumstances of their lives, the character of self-directing human beings." But although much is said about the place of the ordinary worker in our modern large-scale industry, the book has a much wider sweep; it provides nothing less

than a critique of the underlying principles and the characteristic organisations of modern capitalism. Thus the target is set very high and its attainment demands all the powers of selection and compression which—to a remarkable degree—our authors possess. We are invited to stand back and survey dispassionately some of the predominant forms of industrial organisation and the "manifold schemes for their supersession or improvement" while keeping "at the back of our minds a picture of Man, eager to enjoy and to beget, lodged precariously on the surface of a finite planet, and arguing distractedly with blind forces the eternal question of his daily bread."

The earlier chapters explain the functions of the various parts of modern industrial organisation very much in the light of the two key principles of differentiation and integration, the former relating to the gains from the division of labour, the latter to the need to co-ordinate related activities. Here the discussion, which is highly effective, is very much in the tradition of Marshall's *Industry and Trade*. This is true of the content and also of the style of approach. The careless reader, deceived by the admirably clear and simple writing, might readily fail to appreciate the depth of the analysis; almost casually and in familiar day-to-day language, ideas are thrown out which many writers, by means of a more elaborate and technical formulation, would have made much more fuss of. (Already in the 1923 edition the notion of "countervailing power" is explicitly formulated in a sentence. "Sometimes such concerted integration is undertaken as a counter-move to the integration practised by more powerful bodies . . .."). There are several asides which merit much reflection. Thus, for example, the authors claim that: "It is the economies of large-scale government rather than of large-scale technique which dictate the size of the modern business unit." But is it still true to say that: "It is the merchant rather than the maker who is the hub of the modern economic system with its dependence on the mechanism of price"?

"Where the risk lies, there the control lies also." This, according to our authors, is the leading characteristic, if not the golden rule, of capitalism. The virtues of this arrangement are seen to be two-fold; the people who take decisions are likely to be more prudent if they personally have to bear any losses which might result from these decisions; and secondly, resources will be more willingly put to hazard by those who maintain control over their allocation. While one may agree that the association between risk and control is a hallmark of capitalist organisation, there is room to doubt whether its chief advantages are in fact psychological effects of this kind, important though they may be. The key principle seems to me to be somewhat different. It is characteristic of the system of capitalism that the extent of the control over resources exercised by a person or a company varies with the degree of success shown in allocating them—in so far as this is measured by the profits or losses made. In a collectivist economy the authority to allocate resources is itself allocated (or delegated) by the central

government; the capitalist system, on the other hand, is acephalous, in that the power to allocate resources depends on the distribution of wealth and reputation and, thereby, on demonstrated success, on inheritance and on luck. While the psychological effects of the golden rule are at least weakened by the total or partial divorce of ownership from control which we find in the salaried management of large companies, the "selective" effects are not.

Reminiscent of Marshall is also the general approach. We are not likely to forget that there are exceptions to general principles and that tendencies in one direction are usually offset by forces working the other way. Balance dominates the discussion; no one who follows it will be led either wholly to justify, or wholly to condemn, the patchwork structure of a modern mixed economy. And indeed this demonstrates the wisdom of the authors, for it is probably an untidy compromise which gives us the best of all possible economic worlds. Some students will benefit from the sobering sense of responsibility which this mature approach calls forth; but it is possible that others may receive a greater stimulus and a greater challenge from authors with more axes to grind.

G. B. RICHARDSON

St. John's College,
Oxford.

The Meaning of Modern Business. An introduction to the philosophy of large corporate enterprise. By R. ELLS. (New York: Columbia University Press (London: Oxford University Press), 1960. Pp. xi + 427. 60*s*.)

THIS book deals with an extremely important subject—the limitations imposed on theorising about the modern business corporation by the necessities of traditional economic or legal theories and how to get round them. It is unfortunately easier to define the problem than find the answer.

The author sets up two simplified models of the corporation, the traditional and what he calls the metrocorporation. The traditional is the crude profit seeker; the metrocorporation is the firm which is socially responsible, which "lays emphasis upon the rights and duties of the corporation as a citizen and its relationships to society." This latter concept shows the full weakness of this kind of approach. It is full of philosophical pitfalls; for example, why does the metrocorporation as such have to take an interest in politics (apart from political manipulation to serve its own material ends)? How do managers have responsibility to the corporation itself (when the corporation itself cannot be even defined without reference to the managers)? I doubt whether the whole elaborate construction amounts to more than saying something like this—"increasingly business managements pay attention to social and political factors. This means that their economic decisions are coloured by the general climate in which they work. Moreover they themselves play a great part in determining that climate. Decision taking therefore becomes very difficult." This conclusion easily allows Mr. Ells

to demolish the model as unsatisfactory either as a description of reality or as a desirable form. Likewise, it is not difficult for him to demolish the traditional.

What Mr. Ells has tried to do is to offer a way of developing a theory of the firm in all its aspects. What he has succeeded in doing is to show that theories which deal with only one aspect are inadequate for this purpose. Of course they are. Few would claim that the economist's picture of a firm was valid for all purposes; all the economist needs for his models is that in economic matters the firm should behave as he postulates, and it has not yet been shown that non-economic factors enter so strongly and so perversely into firms' decisions that all economic reasoning about them must be invalid.

Having disposed of his two extreme models, Mr. Ells then offers us the "well-tempered corporation." This is simply a corporation, which, though it has as its goal the pursuit of profit, "with basic concern for those who have committed their property and their careers to the company, and full consideration of the commitments their enterprise has made to society," fits into all other aspects of the social and political system. Necessarily it is cast in such general terms as to be useless as an analytical device; it may perhaps serve as a reminder that business has to fit into society.

Mr. Ells has not always succeeded in avoiding the great dangers which beset the makers of big generalisations. For example, what can be made of his fifth element; "The well-tempered corporation is a system of private government with *self-generated* principles of constitutionalism that match corporate authority to corporate responsibilities and impose restraints upon corporate officialdom for the protection of the rights of persons and property against abuse of corporate power"?

The style of writing is so stodgy that the book is extremely difficult to read.

N. H. Leyland

Brasenose College,
Oxford.

Taylorism at Watertown Arsenal. Scientific management in action, 1908–1915. By H. G. J. Aitken. (Cambridge, Mass.: Harvard University Press (London: Oxford University Press), 1960. Pp. viii + 269. $5.75.)

In 1916 the United States Congress made it illegal to conduct time studies by stop-watch in government arsenals, and this prohibition lasted thirty-three years. It has always been intriguing to know what lay behind this drastic intervention by the legislature, and here we have an authoritative and admirably documented account of the background and the precipitating events. Both background and events prove to be of an interest far beyond that of students of American industrial history.

Watertown Arsenal was a national if not a nationalised industry, the strike

of foundrymen which sparked off the train of events was, at first, unofficial, and much of the trouble, attributed to trade-union agitators, was due to faulty communication—a combination not unknown to-day nearer home. In fact, the very same type of time-and-motion studies (though known under different and rather fancy names, such as Operational Research) are now being carried out in British factories to a greater extent than ever before. This book is therefore topical and timely.

The story is extremely well told by Professor Aitken, beginning with an account of the Taylor System, the organisation of the United States Ordnance Department and its Watertown Arsenal, and ending with the story of the " conflicts " and their consequence both on efficiency and in the unexpected developments, such as the strike and legal prohibition. The reader catches illuminating flashes of the personality of Frederick Taylor himself and his early disciples, including Gantt (who was becoming somewhat heretical) and the orthodox, but tactless, Barth, and of the difficulties of national control. In the light of recent British railway and coal-mining history, one cannot but admire the enterprise and risk-taking of General Crozier, the government's Chief of Ordnance. With no profit motive (or even a big-business salary) he initiated scientific management with its job-analysis, division of labour, work flow and control of inventories, and accepted the thesis, as put by Henry Towne, that, if engineers (p. 36) " are to be called upon to function as executives . . . they must widen their intellectual horizons and learn to think and act as economists." Incidentally, English economists, at least at Cambridge, were not slow to see the importance of Taylor. I well remember Pigou, as early as 1913, recommending us undergraduates to read *Scientific Management*—advice I, happily, took.

The scientific management of Taylor was, as Aitken puts it (p. 34), " an attempt to translate into a set of practical managerial procedures logics of size, time and hierarchy," arising from the constraints of concentrating a large number of men at a common place of work, of referring task (and pay) by reference to the clock and of concentrating all significant decisions as to the job upon management. Taylor " accepted with little question the view of human nature implied by Benthamistic utilitarianism " (p. 34). He tried " to create an environment within which the individual, by rational calculation of what was to his own advantage, would do that which management wished him to do." Taylor and Crozier were no doubt woefully ignorant of modern industrial psychology and sociology, and in their ignorance they relegated the actual time study to an " inferior " (p. 16), though he was to be the main contact of their new system with the foundry workers. Yet recent English investigations suggest that since Elton Mayo set the fashion, socio-psychological interpretations have gone too far. Once his representatives are communicated with beforehand and participate in controlling conditions, the worker is more of a rational economic, and less of a sociological man, than public opinion (outside the factory!) now supposes.

Though, as all too usual in business, the management failed to isolate the various factors involved or to institute any really scientific test of each of the new measures, the Ordnance authorities were satisfied that costs had fallen, and extended Taylorism to other arsenals. Many of these measures, such as new requisitioning procedures, did not affect the operatives, and the one measure most likely to affect them, the differential piece-rate payment, was apparently not used at the Arsenal. Here the author is not clear whether Taylor approved the premium bonus that was in fact applied—a degressive system which I have shown to be, both in Britain and America, a poor incentive and often a cause of output restriction. Taylor was not explicit in his Scientific Management, either, but Professor Robert Hloxie, who, as Aitken tells us (p. 3), was " investigating the effect on the working man of certain innovations in methods of industrial management popularly known as Taylorism," stated in his *Scientific Management and Labor* (issued as early as 1915) that, " [on] the Taylor payment plan, as soon as a worker attains or exceeds the task set, a new and higher rate become operative " (his p. 65). This was logical enough, since if what is a feasible task is " scientifically " ascertainable a jump in rate of earnings should be offered to get that precise task accomplished. But the completely logical Taylor system was apparently not applied in the Arsenal. Instead of the progressive differential piece rate, a degressive premium bonus was introduced.

In his Preface the author contends (p. vii) that " it is dangerous to base an interpretation solely upon what the Taylor group and their opponents said or wrote about the system," and it is in fact not certain whether the individual differential wage has ever been applied except, curiously enough, in Soviet Russia to-day. Certainly this book is the first account of the actual application of the Taylor treatment, whether full or not, to a particular factory, and the account should be of the greatest interest to all industrial economists.

P. Sargant Florence

University of Birmingham.

Industrial Pricing Policies. An analysis of pricing policies of Danish manufacturers. By B. Fog. (Amsterdam: North-Holland Publishing Co., 1960. Pp. viii + 229. 35*s*.)

In this work Professor Fog presents the results of an inquiry, by questionnaire and exhaustive interview, lasting from 1951 to 1955, into the pricing policies of 185 Danish manufacturing firms. After a very careful and frank discussion of the technique, the author reports his findings on the firms' knowledge of their demand curves and of their costs, their methods of cost calculation, their pricing methods and the importance of competition. He also presents three more intensive industry studies (footwear, radio and television, paint, dyestuffs and varnish). His object is to discriminate between

" marginalist " and " full-cost " theories of business behaviour. His conclusion is, roughly, that he finds nothing which decisively refutes marginalism (although modification in the direction of long-run profit maximisation is required), whereas market conditions play so large a part in determining " costs " and margins that no strictly " full-cost " theory will do.

This work, in my opinion, is a useful positive contribution to economics, if only for the light it sheds on full-cost pricing. Most of the firms investigated used some sort of full-cost calculation in setting prices, but it turned out in nearly every case that at the final stage in the process the price-setter in fact asked " what will the market bear? " In other cases the cost calculation was simply " rigged " until it produced a price thought " reasonable." Professor Fog gives some classic examples of this. He finds that: " If it is impossible to secure the selling prices which should have been obtained according to one [cost] principle, it is the general rule to adopt another principle " (p. 65); and " Such methods [of cost calculation] are a result of the superstition that a calculation must show a profit and if it does not do so in one way it must do so in another " (p. 98). Surely this will at least suffice to bury the superstition that " full-cost," in one form or another, constitutes a meaningful and significant theory of value. On Professor Fog's showing, margins simply are not " given," but they (or the cost " calculations ") are flexible, and are deliberately varied to suit market conditions. (The real problem, of course, is to construct a theory of how and why they vary, but this Professor Fog does not consider.)

When it comes to the relationship between his evidence and the profit-maximisation hypothesis, Professor Fog's methodological naïveté is more of a handicap. His general view is that long-run considerations are important, but the sections on " modification " of the hypothesis are what Professor Shubik has called " conversational economics "—that is, qualitative, *ad hoc*, intuitive amendments to a formally specified hypothesis which do not produce a new hypothesis (although they may suggest lines of development), but a muddle of the formal and the informal, the rigorous and non-rigorous, which may be superficially attractive but is not in fact susceptible of further analysis or test. Professor Fog has, in fact, very little idea of how the profit maximisation hypothesis might be tested. He looks for equality between marginal cost and marginal revenue, but, as the latter is difficult to measure, he does not set much store by this. Apparently he has never heard of comparative statics: it never occurs to him that equilibrium theory yields values of the variables for given values of the parameters, and may therefore yield testable predictions as to the changes in the variables which must be associated with a given change in a parameter.

Here, indeed, industry and innocence have combined in good faith to produce a work which is, if partly by accident, a contribution to knowledge and a methodological object lesson. Professor Fog has accepted at face value the urgings of that school of economists who believe that the only way

to proceed is to " get close " to individual firms, and learn their language, methods and histories, in order to acquire an intuitive understanding of their objectives and problems. He has done this as carefully and thoroughly as one could reasonably ask, and his work therefore affords an admirable test of the method, all the more so because the author's enthusiasm for it is not diminished by any undue methodological sophistication. The method is revealed as quite inadequate for serious test of a properly specified hypothesis (profit maximising); and although it yields some interesting observations and insights, the results are too often of the sort " firms do what they do, and, odd as it often seems, it can usually be rationalised somehow."

The translation is into a quaint but quite readable pidgin-English. There is one colossal howler, which may be due merely to the translator not appreciating the distinction between revenue and profit: in a case of discrimination " the home market price must be set in such a way that the marginal profit on the home market = the marginal profit on the export market = the marginal costs " (p. 86, n. 17). There is no index.

G. C. Archibald

London School of Economics.

Economic Issues of the 1960s. By A. H. Hansen. (New York and London: McGraw-Hill, 1960. Pp. xv + 244. 43*s*.)

Professor Hansen's book has grown out of lectures that he delivered at Haverford and Smith Colleges in 1959 and 1960; and it has the broad sweep, clarity and succinctness characteristic of lectures at their best. It is essentially a discussion of economic policy—the policies which in his view are to be commended for the United States during the coming decade.

The book is divided into three parts. Part I, entitled " The Inflation Debate "; Part II, " Growth, Automation and the Dual Economy "; and Part III, " Developed and Underdeveloped Countries."

Professor Hansen is not scared by the prospect of a very gradual creeping inflation, provided that it really does creep; and he holds that the post-Second World War rise of prices in the United States need not be regarded with undue alarm; thus he contrasts favourably the 1½% compounded annual rise in American wholesale prices from 1944 to December 1959 with the gold standard annual rise of 2¼% for the period 1897–1913. He strongly favours increasing the built-in stabilisers of the economic system; and suggests the desirability, *inter alia*, of an automatic counter-cyclical tax-adjustment scheme.

Part II, amongst much else of interest, contains an eloquent and effective defence of that bugbear to many of his fellow-countrymen, the Welfare State, which finds in Professor Hansen a whole-hearted supporter. His case for the productivity of an efficiently organised system of social services, financed out of public funds, is instructively and cogently developed; though it

seems to cry aloud for the use of that noble tool of economic analysis for which our subject is indebted to Professor Pigou—the distinction between marginal social and marginal private net product. The writer has hard words to say of the vast expenditure on advertising, which is threatening, he says, to turn the American people into a " gadget society "; and he gets in some shrewd blows at " consumer sovereignty." His own aims lie in quite a different direction: " The progress we shall make toward a truly higher standard of living in the next few decades will depend above all upon the degree to which we choose to use the vast powers of a democratic government to build a really civilised community."

In Part III Professor Hansen stresses the need for developed countries, in particular the United States, to control in a sufficient measure the trade cycle—a control which he contends should be possible in the light of our present knowledge. The problem of underdeveloped countries is dealt with mainly by reference to India, where he spent eight months in 1957–58 as guest professor at the University of Bombay. Here he believes that what is most urgently needed is a massive programme for Rural India; most important of all, in a long view, being the provision of schools and teachers. " Whether India will survive or be lost to the free world will depend primarily upon what happens in the 600,000 mud villages."

It is impossible in a short review to do justice to this provocative and highly stimulating book. It is full of constructive ideas, forthrightly presented; though the writer is careful as a rule neither to overstate his own case nor the case he makes against those who hold opposing views; and on some issues he says frankly that it is not impossible to give a final and decisive answer. He marshals his statistical material with great skill, and uses it to good effect for the purposes of his argument.

Although primarily relating to the United States, there is much in Professor Hansen's short book to interest economists in other countries; it is certainly very readable and also very well worth reading.

C. W. GUILLEBAUD

St. John's College,
Cambridge.

Nationalized Industry and Public Ownership. By W. A. ROBSON. (London: Allen & Unwin, 1960. Pp. 544. 50*s*.)

" WHAT we were seeking " [said Herbert Morrison in 1954] " was public ownership, public appointments, a sense of accountability to the nation—John Bull—together with efficiency of day-to-day business management on commercial lines . . ." (Quoted by Professor Robson on p. 69). Similarly, the Webbs argued in 1920:

> " In place of the jealous secrecy in which the 1,400 separate colliery companies at present enshroud their operations . . . we visualize the

administration of each national industry and service, no longer concerned for magnifying the private gains of particular capitalist groups . . . but merely for increasing the efficiency of the service to the public, in the glare of a whole series of searchlights " (p. 206).

No one has directed more searchlights than has Professor Robson, and this latest volume provides a comprehensive and invaluable guide to all students of nationalised industry. A largely successful attempt has been made to divide the subject matter analytically rather than by industry—with chapters on " Competition and Monopoly," " The Governing Board," " Finance " and the like; and although this leads to some repetition, comparative study of different industries is much facilitated. The bewildering series of reorganisations within the industries, the main statistical facts of their development and the nature of their operating problems are clearly explained. This is not a book to read through at a sitting, but a volume for constant reference and authoritative discussion of the main problems. On the question of decentralisation of control, for instance, Professor Robson offers a vigorous and illuminating confrontation of the views of the Herbert and Fleck Committees and of other writers, exposes all the arguments to sharp criticism and eventually recommends a judicious blend of centralised policy making with devolution of executive responsibility. (On this topic, as on all others, there is an extremely useful classified bibliography.)

The quotations from Lord Morrison and the Webbs, however, do more than point the need for searching investigation of public enterprises. They also exhibit—the Webbs perhaps more explicitly than Lord Morrison—the unresolved dilemma of those responsible for nationalised boards: if the aim of public enterprises should be the same as that of private firms—the maximisation of a surplus—why should we bother to nationalise industries at all? And if public enterprises should have some other aim, what is that aim? (The pursuit of profit maximisation may be readily translated into a form which would be more consistent with a statutory obligation merely to cover costs and provide for expansion.) In the first fine flush of 1945–47 the public interest was clearly thought to be quite inconsistent with profit maximisation; now, after the somewhat hostile interventions of the House of Commons Select Committees, the pendulum has swung the other way—nationalised industries are, it seems, to be run on purely commercial lines. The time is surely ripe for a reconsideration of the rules for operating publicly owned concerns.

The two areas of policy most sensitive to this dilemma are price policy and investment policy. On both these sets of issues, Professor Robson marshals the evidence and controversy for our examination, but he does not explicitly solve (or even completely recognise) the fundamental problem. Indeed, it sometimes seems that he would like to ride both horns of the dilemma simultaneously: on pp. 409–10, for instance, he criticises Professor Cairncross for emphasising the " distortion " introduced by ignoring the

market mechanism in allocating investment resources, and himself stresses the " primacy of political decisions " in this problem; but on pp. 119–20 he pours scorn on those who would modify free competition: " This common-sense view of the desirability of competition may sound painfully obvious to anyone of ordinary intelligence . . .," and " Any attempt to ' coordinate ' the use or prices of gas and electricity should be regarded with great suspicion as a probable plot against the public."

Professor Robson must not be criticised too strongly if he has in fact failed to work out this problem—he is certainly no exception in this respect. But it must be admitted that the fuzzy nature of this concealed major premise does make even some of the non-economic discussion less useful than it would otherwise be. The knotty problem of responsibility to Government and Parliament, for instance, centres around the degree to which ministerial control of investment decisions is thought necessary: how can one resolve this problem without analysing in more detail the criteria for investment in public enterprises? Moreover, the co-ordination of the services at present offered competitively by different industries is surely, on at least two grounds, a *possibly* desirable outcome: first, because to make both a gas and an electricity connection, for example, may be wasteful; and secondly, co-ordination of rail and road services may lead to lower social costs of providing a given service than was previously available from either source before co-ordination.

None of these topics, or associated questions of pricing, are fully discussed by Professor Robson, but it is fair to say that his interest is in the public administration aspect of his subject. The information with which he has provided economists will enable further discussion to proceed, based now on a fuller and more accurate framework of facts and fundamental ideas than was previously available.

M. V. Posner

Pembroke College,
Cambridge.

Time Series Analysis. By E. J. Hannan. (London: Methuen, 1960. Pp. viii + 152. 21*s*.)

This short book is a very valuable addition to Methuen's new series of monographs on applied probability and statistics under the general editorship of Professor M. S. Bartlett, F.R.S. The dust jacket hints correctly that the book contains useful information about topics, frequently neglected in practice, that are relevant to the analysis of economic data. However, the wide dissemination of the appropriate parts of the book will necessarily be limited by the basic knowledge of statistical theory required for its profitable perusal and by the inevitably rather compressed character of its exposition.

When it is necessary to estimate the coefficients in a regression equation, it is normally considered desirable to use methods which lead to estimates of the coefficients which at worst are consistent (converge in probability to their true values) and have asymptotic efficiency (have the smallest possible sampling variance in large samples). In another context Professor H. E. Daniels has pointed out that the desirability of these minimal properties is far from self-evident when the number of observations is small, but no one has, I think, suggested any satisfactory alternatives to them. Where, for example, the residuals in a regression equation are uncorrelated over time, the well-tried least-squares method produces satisfactory estimates. In most economic applications, however, it is not unlikely that the residuals in succeeding time periods are connected by some kind of probabilistic process; in such a situation estimation cannot effectively be carried out until the nature of the process generating the residuals has been diagnosed. The identification of the process is further complicated by the fact that the residuals themselves cannot be directly observed but only estimates of them derived after a particular regression relationship has been fitted to the basic data.

In Professor Hannan's discussion only the last chapter is concerned with regression problems themselves. The earlier four chapters deal with the problems of analysis of and inference from stationary time series; a study of these problems is an essential preliminary to any satisfactory understanding of the difficulties arising in regression analysis. Statisticians operating in the economic field have mainly confined their attention to two out of three possible approaches to the analysis of time series; the direct investigation of the structure of the underlying processes and the study of their correlograms. On the whole the method of spectral analysis, which investigates the intensities of various periodicities, has been neglected, largely no doubt because the concept of the spectrum is not associated with the same clear interpretation as in the physical sciences. Lord Beveridge's periodogram analysis of wheat prices from 1545 to 1844 stands as an almost isolated example of the practical employment of the spectral approach. The main general lesson of Professor Hannan's monograph is that this unfortunate neglect ought to be rapidly remedied, since spectral analysis provides both an essential unifying element in the theory of time series and a valuable tool of observational investigation. Spectral theory also has the advantage that much of it requires only knowledge of the second-order moments of the distributions involved.

The correlogram is shown to be an unreliable tool even with quite long series, because the coefficient of variation of the estimated autocorrelation coefficients increases with the lag involved. Use of the correlogram should be confined to the detection of pronounced oscillations and determination of the speed with which the autocorrelation coefficients tend to zero as the lag is increased; and even for this limited use the correlogram should be truncated to avoid distraction by the later autocorrelations which provide

virtually no information. If inspection indicates that a relatively simple process will provide a reasonable fit to the observations, the parameters of this process can be estimated; the data are then transformed by means of the estimated process to produce a new series of observations likely to possess a comparatively uniform spectrum. The actual spectrum can then itself be estimated, using an appropriate smoothing device, and the knowledge so gained used to identify a more adequate, and probably more complicated, description of the underlying process. Thus the practical analysis of observations may well be a long and intricate procedure, and little progress can be made with comparatively short series of observations.

Of the available tests of significance, some can be used with small samples, but mostly they must be confined to comparatively uninteresting cases where the null hypothesis is that of independence. This explains the somewhat perfunctory use which is now made of von Neumann's ratio.

Very often lip service is now paid to the possibility of autocorrelated residuals in regression equations by estimating the regression coefficients after taking the first differences of the original observations. In his final chapter, Professor Hannan shows, among other things, that this procedure can be very dangerous if the relationship to be estimated includes a polynomial trend, for in such a situation estimates obtained from the first differences have zero asymptotic efficiency. Better results would be obtained by using the method of least squares on the untransformed data. Here again it is the examination of the nature of the spectrum of the residuals which provides a fuller understanding of how the difficulties of estimation can arise.

Professor Hannan's survey and assembly of recent important results can leave no doubt that there is much to learn. What is less clear is the nature of appropriate action in the light of increased insight and understanding. For prediction it is first necessary to estimate; adequate prediction and estimation must be based on reliable knowledge of how past observations have been generated. To infer the generating process is excessively difficult with only limited runs of economic series. More observations seem to be the simple answer, but this conclusion does little more than restate the problem in another way. If more observations are obtained by observing each quarter, say, instead of each year, the apparent advantages are partially offset by the existence of a higher degree of autocorrelation between residuals of succeeding time periods. If, on the other hand, the number of years over which observations are collected is increased, the danger that the process generating the observations has itself changed also grows.

Too straightforward answers cannot be expected to complicated questions. Clearly more trouble ought to be taken in the future over analyses of economic time series. It is also as well to be more cynical about the claims made by statisticians handling short series for the reliability of their estimates and predictions. The validity of the claims will rest on the *right* " statistical

model" having been found, and it seems virtually impossible in the present state of knowledge to be able to argue convincingly that this has been done, at least with samples of the size at present available.

A. D. Roy

Sidney Sussex College,
Cambridge.

An Economic History of England, 1870–1939. By W. Ashworth. (London: Methuen, 1960. Pp. vi + 438. 36*s*.)

This book is the second to appear in the series which began with Professor Ashton's *The Eighteenth Century*. Unlike Professor Ashton's, it is a large book, but it resembles the earlier volume in that some prior knowledge of the period is assumed. Exactly how much, it is not easy to say. Certainly no undergraduate would benefit greatly from reading this volume unless he had previously read at least one of the standard texts dealing with the period.

Professor Ashworth is clearly exceptionally knowledgeable, especially as regards the period before 1914. Every aspect of the subject is touched upon, from the rate of saving to the growth of department stores. Nor is the book merely an extensive collection of the familiar orthodoxies. Thus the point is repeatedly made that the well-known "statistics" for unemployment in the nineteenth century are of very little value because "chronic under-employment rather than . . . occasional and limited unemployment" was the main trouble; as more occupations became regularly manned "the probability is that the available labour force was becoming more fully utilized" (p. 193). Likewise, Professor Ashworth makes short work of that strange but familiar superstition that an "end" or "relative cessation" of net foreign investment can be deduced from the fact that after about 1873 additions to capital held abroad seldom exceeded the current income from foreign dividends and interest. He also points out that Rostow's well-known thesis that changes in the nature and volume of Britain's foreign investment in the later nineteenth century go far to explain changes in real income is "only partially true" (p. 242). (Incidentally the same writer can derive little consolation from the statement on the previous page that: "By the last quarter of the century the burden of providing for a great increase in population had scarcely eased . . . but the most onerous stage of investment in industrialization was over." Does not this rather sound as though the end of the so-called "take-off" in Britain could be plausibly dated about the start of the Boer War?) There is also an extremely good brief explanation of the London money market, and the chapter on agriculture before 1914 is far superior to anything hitherto available, and is one of the best chapters in the book.

Despite these and many other similar merits, the book has a number of

rather serious defects. It is all very impersonal; not even Lloyd George, or Ernest Bevin, or Lord Nuffield appears as an individual, shaping the course of history. The style is verbose and cumbersome, and the reader's task is not lightened by the frequent use made of figures, which should, in many instances, have been put into a table. Some topics are touched on surprisingly briefly; the chemical industry in the nineteenth century does not make much of a showing, the rise of the steel industry receives only about a page, the fall in commodity prices between 1873 and 1896 only about half a page. It is impossible to believe that such brevity of treatment is consistent with proper recognition of the importance of these subjects. Later, the treatment of the inter-war years is not so clearly organised as that of the pre-war period, and the importance of the 1920 boom is probably underestimated.

All this does not make an easy book. That, in itself, is no criticism of it. The whole performance, indeed, is very reminiscent of Clapham's *Modern Britain*. The wide coverage; the extensive knowledge; the continual use of figures—all are here; without, alas! Clapham's easy and engaging style. To unqualified admirers of Clapham's great work this will be high praise. And it is only fair to add that Professor Ashworth offers what Clapham was so careful to avoid—an attempt to assess the energy, the wisdom and the skill shown in the functioning of the economy at different periods. But these analytical comments are not easy to evaluate. This is partly because of the author's style, partly because some problems are discussed in a number of separate places, partly because of the great number of qualifications and reservations with which each judgment is clouded. Was the economy as efficient as it should have been in the years before 1914? Was there too much foreign investment? Was a reasonable effort made to adopt new ideas between the wars? The present reviewer suspects that he thinks very much as Professor Ashworth does on most of these questions. But it is difficult to be sure. Professor Ashworth is so very cautious, so very judicious, so very involved, that the reader tends to be left wondering quite what is meant; and may come away in the end with the impression that if all was not for the best, at any rate all could hardly have been otherwise.

This book, with its great array of facts which harbour no human personality, its abundance of figures which form so few statistical series and its careful reassessments which make rather a featureless plain where once there were mountains (too high) and depths (but too profound) is impressive; but it does not satisfy.

A. J. YOUNGSON

University of Edinburgh.

Domestic Income and Product in Kenya. A Description of Sources and Methods with Revised Calculations from 1954–1958. (Nairobi: East African Statistical Department, 1959. Pp. 97. 8s.)

The National Income of the Sudan, 1955–1956. By C. H. Harvie and J. G. Kleve. (Khartoum: Department of Statistics, Republic of the Sudan, 1959. Pp. 115.)

Comptes Économiques Togo, 1956–1957–1958. Études Économiques Ouest Africaines, No. 3. By G. Le Hégarat. (Paris: Banque Centrale des États de l'Afrique de l'Ouest, 1961. Pp. xv + 278.)

The decade of the 1950s witnessed a considerable development and extension of national-income work in tropical Africa. What was once the happy hunting ground of the independent research worker has become the routine preoccupation of official statisticians and international Civil Servants. It might have been expected that this absorption of national-income research into the public sector would have introduced a standardisation of methods and an impersonal character into the resulting publications. The fact is, however, that African national-income publications are as heterogeneous under the official stamp as they ever were when privately produced. Frequently they are signed or clearly attributed in the preface to some particular individual or group of individuals. In spite of their access to "standardised systems" and although the economies they describe and the methods of estimate open to them are necessarily somewhat similar, they are presented in an extraordinary variety of format.

The three publications listed above offer a small sample of this variety. The Kenya report is austerely limited in its scope. Apart from a brief introductory statement of concepts, it is largely concerned with a detailed description of the methods adopted to calculate gross domestic product (analysed by industrial origin and factor incomes) and gross capital formation for the five years 1954–58. The nearest approach to a comment on the implications of the results is a short section on the rate of growth of domestic income which shows the effect of converting the gross product estimates to a per head of total population basis, and of deflating these figures by the Nairobi cost-of-living index based on the European expenditure pattern in 1939. A particularly exasperating omission is the estimates for the years back to 1947, which were published in a series of earlier publications to which no explicit reference is made in this report. It is unfair to castigate for sins of omission official statisticians who are obliged by their political and departmental responsibilities to be cautious in the figures they release. But failure to consolidate—however broadly—the results of the Department's past work in the field seems to limit unnecessarily the usefulness of this publication.

The report for the Sudan is a great deal more expansive. Partly no doubt because it represents the first full-scale national-income estimate for the Sudan, the authors have dealt discursively with concepts, practical prob-

lems of measurement, the character of the economy and the analytical uses of national-income estimates. There are signs of hasty writing and hasty calculation, but the authors' enthusiasm is infectious, and if they have attempted more than they could elegantly complete they have produced the kind of thought-provoking document which will interest a relatively wide audience. Like the Kenya inquiry, this is focused on gross domestic product, but there is an expenditure breakdown, a regional breakdown (showing a range of £14 to £42 in *per capita* product for the four large regions distinguished) and an input–output table.

In striking contrast to these two reports is the substantial and beautifully produced volume relating to the little Republic of Togo. The elaborate set of interlocking accounts which Monsieur le Hégarat of the French Institut de la Statistique et des Études Économiques has built up into a Tableau Économique for a community variously estimated to number between 1·2 million and 1·6 million inhabitants, is an amazing exercise. Here carried to its logical conclusion is the French system of accounts, a " resources and uses " kind of analysis designed to record every single economic activity performed during the period in question and to relate to this exhaustive framework the available human and material resources. The text is meticulously clear and imaginatively illustrated by diagrams and maps. Eighty-five categories of goods and services and thirty-five branches of economic activity have been distinguished. The accounts are fully articulated and are made to yield the familiar domestic and national-product aggregates.

Unfortunately the raw material of these intricate calculations—the basic statistics—are as unreliable as for any other African territory, and, given this fundamental uncertainty, it is difficult to see what useful policy purpose such an elaborate accounting system could serve for a primitive economy. The virtues of the French system are a matter of lively current controversy in the statistical offices of Europe. But whatever view one might take of it in principle, its cost in statistician man-hours is surely disproportionately high for the statistically backward countries of Africa.

PHYLLIS DEANE

University of Cambridge,
Department of Applied Economics.

Hudson's Bay Company, 1670–1870. Volume II: 1763–1870. By E. E. RICH. (London: The Hudson's Bay Record Society, 1959. Pp. x + 974 + xv.)

IN this vast volume Professor Rich rounds out his study of the interplay of business, politics and personality in the history of the Great Company. Writing from the point of view of the Company's documents, the author has wisely refused to compress new evidence. There is great complexity in the narrative of remarkable achievements, and it would have been wrong to

condense or omit in the interests of space or bulk. For all its detail, this is a well-balanced account of the changing fortunes of the trade; the Company's halo remains, it is true, but it has been cut down to its proper size. In the first half of the study Professor Rich traces the course of trade rivalries over the period 1763–1820 and writes of the appearance of the Canadian trader, the expansion of trade to the Athabaska, the Arctic and to the Pacific coast, the rise of the Northwest Company and the development of its Columbia enterprise and finally, the events leading to the coalition of the rival organisations. The concluding section of the book continues the narrative to 1870 and deals with the conduct of trade under the leadership of George Simpson and the prolonged and difficult negotiations which surrounded the end of Company rule.

A new era in the history of the trade had begun in 1768. To meet the threat of strong competition based on the knowledge and skill of the French trade, tentative steps were taken to push the trade inland from the Bay. Although promising beginnings were made in this direction, these ventures suggest little more than resort to a policy of defensive expansion in which "close accountancy, cautious experimentation, and subordination of the individual to the common concern" were counted on to offset the aggressive drive of the Northwester. The staid and durable Company, somewhat in the "frame of mind of a group of prosperous eighteenth-century London businessmen," continued to stress the virtues of coherence and stability even at the cost of numerous promising ventures. Yet theirs was a more comprehensive view of the trade which looked to long-run geographic advantages and Old World connections to hold the line until the increasing costs of the Northwest Company's operations had undermined its competitive position. The failure of the latter in its attempts to purchase the rights of the older company or to gain the right of transit to the Bay left it with no alternative to coalition with its better located and longer-established rival. The coalition was to give Simpson ample scope for his talents, for it precluded effective opposition and gave the new Board the Great Charter with its claims to land and privileges. In this review of slow and painstaking adjustment to highly competitive conditions, the author takes full account of the pressures of American trade competition and nationalistic aspirations, of the European background of conflict and of the multiplicity of factors present in the trade itself. It is a recording of achievements marked by patience and high consistency of purpose, and by strong adherence to a conception of the trade which transcended the maximising of short-run returns.

Reorganisation brought new problems, and it was the Company's good fortune that Simpson, that "pawky little bantam," was present to take leadership at this time. His objectives were clear enough: to build an "efficient working machine," free of extravagance and closely linking London with its northern and western posts; to stabilise the Red River colony as a support to the trade; to maintain a boundary with Americans in

the Red River area and to the west. In spite of the slips of judgment and defects of character which marred his later years, he met his objectives. The high prosperity of the Company over the period 1825–63 attests to remarkable achievements under difficult conditions. The orderly retreat of the trade in the Red River area in the face of settlement and of demands for free trade and representative government was made with little support from a British Government more concerned with its own disputes over the corn laws and the navigation acts than with defence of the frontiers of empire. On the Pacific coast Simpson built on the foundations of the Northwest Company, checked American expansion to the north and, backed by such personalities as John McLoughlin, Samuel Black and Peter Skene Ogden, pursued a tough and effective frontier policy. In spite of indecision in Canada and the uncertain support of the British Government, the Company staked out British claims to the Pacific coast and was largely responsible for securing British Columbia in the Oregon Boundary Treaty. There were, however, new forces at work in the second half of the nineteenth century, and the situation changed radically when the Company, still a strong and coherent organisation, passed under the control of the International Financial Society and of men whose interest lay less in the management of the trade than in the realisation of land values and the development of investment and subsidiary interests. With the end of the Company's commercial privileges, there begins the search for a federative solution to problems of administration and settlement in Company territories. A concluding chapter deals with the end of Company rule, the role and conduct of Louis Riel and the Metis problem.

Throughout this study of the complex interplay of events Professor Rich has maintained a fine sense of proportion: no aspect is neglected, and none is out of focus. This has been achieved by his building of the narrative round the outstanding personalities of the trade, and it is this interest in the quality, the fortunes and failures of leadership that gives such colour and life to his arduous undertaking.

W. T. Easterbrook

University of Toronto.

NOTES AND MEMORANDA

MR. WELLS' AGGREGATE SUPPLY FUNCTION— A COMMENT[1]

IN this comment exception will be taken to two points in Wells' recent article: "Keynes' Aggregate Supply Function: A Suggested Interpretation."[2] Specifically we question whether Wells' "*long-sought-after supply curve*" (his italics) adds anything new to the existing tools of aggregate analysis and whether the shape which Wells, in common with Weintraub, attributes to the aggregate supply function is generally valid.[3] We will employ Wells' notation and assumptions.

I

Generally the aggregate supply function is explicitly or implicitly defined as $Z = PX(N)$ or $Z = PX$, Z being the aggregate supply price, P the price level, X the amount of real output and N the amount of employment.[4] If price equals marginal cost we have $P = \frac{w}{X'}$, where w is the constant money wage-rate and X' the marginal physical product of labour, and we can write $Z = \frac{wX}{X'}$. Wells, however, gets the equation $D = \frac{wX}{X'}$, having multiplied both sides of $P = \frac{w}{X'}$ by X and substituted D for PX, arguing that "in equilibrium PX equals D, aggregate demand."[5] Some slight transformations yield Wells' aggregate supply function $N = \frac{X'}{w\bar{X}}D$, $\bar{X}$ being average product, $\frac{X}{N}$.

The inverse of Wells' aggregate supply function, $D = D(N)$, must be interpreted as the locus of points of intersection of the aggregate supply curve $Z = Z(N)$ and the aggregate demand curve because Wells' function implies the equilibrium condition $D = PX$. In the short run the Z-curve

[1] The authors are indebted to Professor Edgar O. Edwards for many helpful suggestions.

[2] Published in the ECONOMIC JOURNAL, Vol. LXX, September 1960, pp. 536–42.

[3] Cf. S. Weintraub, "The Micro-Foundations of Aggregate Demand and Supply," ECONOMIC JOURNAL, Vol. LXVII, September 1957, pp. 455–70; *Idem*, *An Approach to the Theory of Income Distribution* (Philadelphia, 1958), p. 26; *Idem*, "The Keynesian Theory of Inflation: The Two Faces of Janus?," *International Economic Review*, Vol. 1, No. 2, May 1960, especially pp. 151–2.

[4] Cf. S. Weintraub, *An Approach to the Theory of Income Distribution*, *op. cit.*, p. 26; F. J. de Jong, "Supply Functions in Keynesian Economics," ECONOMIC JOURNAL, Vol. LXIV, March 1954, pp. 3–24; E. O. Edwards, "Classical and Keynesian Employment Theories: A Reconciliation," *The Quarterly Journal of Economics*, Vol. LXXIII, August 1959, pp. 407–28.

[5] Wells, *op. cit.*, p. 537.

is fixed, being dependent on the existing production function and the fixed money wage-rate. The locus of the points of intersection of the usual aggregate supply and demand curves (*i.e.*, the various points of effective demand), therefore, must all lie on the *Z*-curve itself. Thus Wells' aggregate supply function is essentially the same as that of his predecessors and will have the same characteristics.

II

The conclusion Wells reaches about the shape of the aggregate supply curve depends upon an unusual assumption about the shape of the production function. Wells writes: "we shall make the usual assumptions concerning the shape of this function that $X' > 0$, $X'' < 0$ and $X''' = 0$." [1] We have no objection to the first two of these assumptions which mean that the marginal physical product of labour is positive and decreasing. The third assumption, however, is overly restrictive. It means that X'', which is the slope of the marginal product curve, is constant and that X' itself is a straight line. Surely this is not " usual " as Wells claims it to be.[2]

Yet it is upon just this assumption that Wells' conclusion that the aggregate supply curve will be convex to the *N*-axis depends. Weintraub has arrived at the same conclusion elsewhere, which he attributes mistakenly to diminishing returns phenomena.[3] There is in fact little evidence to suggest that the values assigned to X''' can be limited in any meaningful way. Because of the fact that the production function is a pure technological relation, none of the possibilities with regard to the value of X''' can be ruled out for theoretical reasons.[4] The following values are all possible: $X''' > 0$, $X''' = 0$, $X''' < 0$. $X''' > 0$ and $X''' < 0$ means respectively that the marginal product curve is convex and concave to the *N*-axis.[5]

In order to consider the implications of different values of X''' for the shape of the aggregate supply curve we calculate the second derivative of Wells' aggregate supply function with respect to D.

$$\frac{d^2N}{dD^2} = \frac{1}{w}\left[\frac{X(X')^2\,X''' + (X')^3\,X'' - 2XX'\,(X'')^2}{\{(X')^2 - XX''\}^2}\right]\frac{dN}{dD}$$ [6]

[1] *Loc. cit.*

[2] None of the authors referred to by Wells in his footnotes on p. 536 makes an explicit assumption concerning X'''. Out of a sample of fourteen text-books on economics only one was found employing a straight marginal product line, and this is referred to as a " simplified example."

[3] Cf. footnote 3, p. 634. In a letter dated November 22, 1960, Weintraub acknowledges that convexity to the *N*-axis is not a necessary characteristic of the aggregate supply curve, as we shall argue more fully below.

[4] Cf. L. R. Klein, " Theories of Effective Demand and Employment," *Journal of Political Economy*, Vol. LV, 1947, p. 110.

[5] Of the thirteen authors mentioned in footnote 2, five employed convex and five concave curves. Three authors employed both possibilities. In his classic article, " On the Law of Variable Proportions," Cassels employs the former. Cf. H. S. Ellis, ed., *Readings in the Theory of Income Distribution* (Philadelphia, Toronto, 1946), pp. 103–18.

[6] Wells inadvertently omits the factor $\frac{dN}{dD}$ in all his expressions of second derivatives. The omission does not alter any of his conclusions. Cf. Wells, *op. cit.*, Appendix A, p. 542.

Inspection discloses that this expression must be negative if $X''' = 0$ as Wells assumes. More generally, the expression will be negative (and the aggregate supply curve convex to the N-axis) when

$$X''' < \frac{2(X'')^2}{X'} - \frac{X'X''}{X}$$ [1]

If this condition does not hold, however, the aggregate supply curve will be either a straight line or concave to the N-axis, characteristics contrary to the conclusions of Wells and Weintraub. Diminishing returns phenomena alone, therefore, are not a sufficient condition for any particular shape of the Keynesian aggregate supply curve.

E. C. H. VEENDORP
H. G. WERKEMA

Rice University,
Houston, Texas.

A FURTHER COMMENT [2]

THE main conclusions I obtained in my paper were: (1) Assuming perfect competition, $N = (X'/w\bar{X})D$ is the aggregate supply function because it states the equilibrium value of employment corresponding to any given level of aggregate demand.[3] (2) The aggregate supply function provides a link between the monetary and real variables of Keynes's system. This function makes it manifestly clear that Keynes's short-run theory of employment is a good deal more than simply a monetary theory. (3) Increases in demand will produce increases in employment, output and the price of output. (4) Assuming X''' equals zero, both $\Delta N/N$ and $\Delta X/X$ will be less than $\Delta D/D$, which, in turn, will be less than $\Delta P/P$.

Veendorp and Werkema criticise my fourth conclusion. From the fact that

$$\left[\frac{(X'')^2}{X'}\right] < \left[\frac{2(X'')^2}{X'} - \frac{X'X''}{X}\right] < \left[\frac{3(X'')^2}{X'} - \frac{2X'X''}{X}\right]$$

they correctly conclude that to obtain my final conclusion, X''' need not be

[1] See also H. G. Johnson, "Mathematical Appendix," ECONOMIC JOURNAL, Vol. LXV, September 1955, pp. 477–8, especially case (iii)(a), who arrives implicitly at the same conclusion for $Z = PX$. Comparable conditions can be derived for the relation between X and D and the relation between P and D. Wells' statements as to these relations are only correct if respectively

$$X''' < \frac{3(X'')^2}{X'} - 2\frac{X'X''}{X} \text{ and } X''' < \frac{(X'')^2}{X'}$$

Cf. Wells, *op. cit.*, p. 539.

[2] I am indebted to T. Yancey, C. Spenkle and F. Shupp for their aid in preparing this note.

[3] If we suppose that firms determined the price of output by marking-up their per-unit average labour cost, $(w/\bar{X})$, by a constant amount $a(a > 1)$, we would have $P = a(w/\bar{X})$. This implies that $PX = a(w/\bar{X})\bar{X}N$. Hence, under these assumptions the aggregate supply function is $N = (1/aw)D$.

zero but must be less than $(X'')^2/X'$. If this inequality does not hold, then my last conclusion is not right.

Their conclusion can be somewhat generalised by hypothetically letting X''' vary from a value less than that of the left-hand member of the above inequality chain, to a value greater than that of the right-hand member. If this is done, seven different sets of relations between $\Delta D/D$ and $\Delta N/N$, $\Delta X/X$ and $\Delta P/P$ emerge.[1] Thus no conclusion can be derived regarding the relative sizes of these proportions unless the value of X''' is known relative to the value of the terms in the above inequality chain.

In the absence of any definite knowledge concerning the third derivative of the aggregate production function, I am willing to make the unfastidious assumption that it is zero.[2]

PAUL WELLS

University of Illinois.

COMPETITION AND DECREASING COSTS AGAIN

H. B. MALMGREN's note entitled "How Long is the Long Run?" suggests that the solution of the old problem of the apparent compatibility of competition and increasing returns lies in the fact that each point on the Marshallian long-run cost curve must be dated. Time is required to move from one point to another. This, it would seem, would explain why the movement from competition to monopoly does not take place instantaneously, but it cannot explain the continued existence of competition over prolonged periods.

Another explanation seems to have been implied by Marshall himself. This is that long-run costs are a function not just of the scale of production but also of the time elapsed since that scale was reached. New opportunities for further division of labour, development of specialised machinery and improvements in organisation are made possible by an increase in the scale of production, and could not have been discovered prior to this time.

This idea is not at all clearly expressed in the *Principles*, where it can be found only "between the lines." His most straightforward statement of the idea is found in *Industry and Trade*:

> "But while the response of demand to increased supply acts on price always in one direction, though with varying degrees of intensity;

[1] If imperfect competition of the kind assumed in the above footnote exists we find: $dN/dD = (1/aw) > 0$, $d^2N/dD^2 = 0$, $dX/dD = (X'/aw) > 0$, $d^2X/dD^2 = (X''/aw) < 0$, $dP/dD = (-\bar{X}X'/\bar{X}^2) > 0$. Thus employment, output and price all rise as demand increases. Furthermore, $\Delta D/D = \Delta N/N > \Delta X/X$. Unfortunately, I have not been able to evaluate d^2P/dD^2.

[2] Veendorp and Werkema report, in their seventh footnote, that from a sample of fourteen textbooks only one author assumes X''' equals zero. I suspect, though, that the authors consulted were explicating micro-production functions in their texts, and not the aggregate production function. For this reason I doubt the relevance of my critics' statistical investigation.

the response of supply to increased demand acts on costs, and therefore on price, in different directions according to circumstances. Its immediate tendency is to raise price: its later effect, in the case of manufactured and some other goods, is gradually to lower costs and therefore price.

"It is, of course, true that an increase in the scale of production of each manufacturing (or other 'Increasing Return') industry opens out to it almost invariably opportunities for a gradual increase of the internal economies to be derived from fit coordination of more extensive varieties of specialized ability, skill and plant; as well as for the standardization of products, and for dealing in the most favourable markets. Again an increase in the scale of production of the industry as a whole, or even in that of the industries which supply its needs, tends to open to each business in the industry, whether large or small, access to improved plant, improved methods, and a variety of other 'external' economies. But all these tendencies are *gradual*: some move fast; other require several years, and others again several decades for their full development."[1]

Evidence as to precisely what he had in mind must be largely circumstantial. It is not even plain that he had explicitly formulated the idea in his own mind. Some indication of the nature of the gradual reductions in cost spoken of above may be found in the examples chosen by Marshall to illustrate the actions of decreasing costs. In each case there are two characteristics which cannot otherwise be explained: starting from a position of equilibrium, he supposes an increase in output brought about by an increase in demand; after an interval of time costs decrease as the result of improved technical organisation.[2] The necessity of postulating an increase in demand prior to the expansion of output can be explained in either or both of two ways: that he was thinking of a less than perfectly competitive market where an increase in demand might be necessary to make expansion feasible; and/or that the development of new economies can and do take place only after output has increased and the further division of labour has opened new possibilities of economies. The other, the existence of a time lag which has no apparent connection with the period necessary to change the scale of plant, seems more consistent with the second of these possibilities. Further, he explicitly states that it is the increase in output that leads to reductions in cost rather than the reductions in cost to an increase in output. The supply curve is, therefore, irreversible.

Thus, in speaking of increasing output, Marshall says:

". . . its increase leads to great improvements in organization.

"For, when any casual disturbance has caused a great increase in

[1] Alfred Marshall, *Industry and Trade* (London: Macmillan, 1923), pp. 186–7.

[2] Alfred Marshall, *Principles of Economics*, 8th ed. (New York: Macmillan, 1952), pp. 455, 460, 805–6, 809. Substantive new inventions are explicitly excluded, although such inventions would be entirely consistent with his comments on technical change.

the production of any commodity, and thereby has led to the introduction of extensive economies, these economies are not readily lost." [1]

As Professor Viner has pointed out:

> "The only basis on which the irreversibility of these curves, as static curves, could logically be posited would be the existence of possible economies of a type adapted to any scale of output but discoverable only when output is great, where invention, but not its exploitation, was a function of scale of output." [2]

The competitive firm, faced with increasing short-run costs and unaware of at least some of the economies possible at larger outputs, is induced to expand output in the face of increasing costs. It is only after their output has been increased that all the improvements made possible by the larger scale are discovered and costs are thus reduced below the levels previously anticipated.

J. A. Gherity

Michigan State University, Oakland.

A NOTE ON AN AMBIGUITY IN SUPPLY CURVES

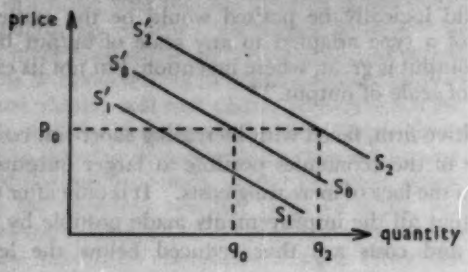
Consider a supply curve of the *downward*-sloping type $S_0'S_0$. Suppose that there is an *increase* in supply. At price p_0 we might think that an increase in supply implies an increased quantity (say) q_2. An increase in supply is then represented by $S_2'S_2$. But, on the other hand, an increase in supply also suggests that the quantity q_0 should be supplied at a *lower* price. An increase in supply is then represented by $S_1'S_1$. A price-into-quantity interpretation of an increase in supply gives $S_2'S_2$, while a quantity-into-price interpretation gives $S_1'S_1$. It seems as though there is no unique meaning to the phrase "increase (or decrease) in supply" with a downward-sloping supply curve.

The paradox can be resolved by specifying precisely the meaning of the supply curve. There are two possible interpretations of $S_0'S_0$. Either it describes the *maximum* quantity which will be supplied at the going price or it specifies the *minimum* quantity. Suppose that it defines the *maximum* quantity. A change from $S_0'S_0$ to $S_2'S_2$ implies increases in the maxima. Larger quantities are put on the market at the going price: this is typically an increase in supply. A change from $S_0'S_0$ to $S_1'S_1$ means that for each price the maximum quantity is *decreased*: this is unambiguously a decrease in supply.

[1] Marshall, *Principles*, p. 808.

[2] J. Viner, "Cost Curves and Supply Curves," *Zeitschrift für Nationalökonomie*, 1932, Vol. III, p. 38. Reprinted in *Readings in Price Theory*, 1953 (George Allen and Unwin Ltd.)

Suppose now that the supply curve defines the *minimum* quantity that will be supplied at the going price. The movement from $S_0'S_0$ to $S_2'S_2$ must now be interpreted as a *decrease* in supply, since the purchaser has to pay a higher price for the same quantity. Similarly, a change from $S_0'S_0$



to $S_1'S_1$ means that the price of a given minimum quantity has fallen: hence the supply has increased.

Using these two distinct definitions, the ambiguity disappears. Price-into-quantity and quantity-into-price interpretations give the same answers. But these answers differ according to the definition of the supply curve as a maximum or minimum quantity.

A. A. WALTERS

Birmingham.

CURRENT TOPICS

THE Annual Meeting of the Royal Economic Society was held on Thursday June 29 at the London School of Economics. Professor J. R. Hicks was re-elected to the office of President. The following were elected to the Council: Professor S. R. Dennison, Mr. N. Kaldor, Mr. W. King, Professor E. V. Morgan, Professor A. T. Peacock, Mr. C. T. Saunders. Under a new arrangement for increased rotation of the Council the following six members of the Council withdrew: Sir Geoffrey Crowther, Professor P. Sargant Florence, Sir Oscar Hobson, Professor J. Jewkes, Professor R. F. Kahn, Professor J. R. N. Stone.

THE Secretary reported on membership and finances as follows:

	1960.	1959.	1939.	1914.
New Fellows and Library Members elected	530	492	490	50
Fellows lost by death, resignation or default	436	327	496	33
Number of Fellows and Library Members on December 31	6538	6444	4572	694
Total Compounders included in above total	1802	1789	1155	159
Surplus of Income over Expenditure	£50	—	—	£278
Surplus of Expenditure over Income	—	£790	£38	—

AFTER the formal business Mr. C. W. Guillebaud addressed the Society on "The Variorum Edition of Marshall's Principles of Economics."

THERE is still an unsatisfied demand for copies of the ECONOMIC JOURNAL for March and June 1960. The Society will pay 5*s*. for any copies returned in good condition to the Secretary at the Marshall Library, Downing Street, Cambridge. No other issues than those mentioned above are required or will be purchased.

THE following have been admitted to Life Fellowship of the Society:

Beltran Prof. L.
Howard-Luck, C.
Nigam, B. B. L.
Ritter, Prof. L. S.
Tam, P. C. K.

THE following have been admitted to Fellowship of the Society:

Adeyemo, M. A.
Aidoo, J. K.
Appleton, J. D. S.
Ashaye, E. S. O. T.
Atkins, K. B.
Bailey, K. N.
Bakare, K.
Banjoko, F. A.
Brandis, R.
Brown, C. V., Jr.
Buchanan, R. T.
Burgess, T. P.
Busuttil, S.
Cheah Phi Kiat
Choumanidis, Dr. L.
Cohan, H. E.
Cook, W. J.
Cordomi, M. L.
Dawson, A.
Demeny, P. G.
Dodyk, P. M.
Dowell, J. M.
Dudley, B. J.
Dunn, A. J.
Enwerekowe, J. C.
Eweka, A. O.
Ezechi, D. C.
Fiaccavento, Dott. C.
Fisher, G. R.
Foster, Miss I.
Gupta, D. A.
Harpin, A.
Harrington, J. J., Jr.
Harris, J. T.
Hew Yoon Wah
Hobis, E. C.
Hodge, Miss M. A. T.
Holland, W. J.
Hughes, J. A.
Hyndman, R. W.
Iau, R.
Jain, S. K.
Jakobs, H. M. H.
James, J. E.
Jones, L. G.
Kierans, E. W.
Kuznets, Prof. G. M.
Lee Yung Sang
Lloyd Prichard, Dr. M. F.
Lusher, D. W.
MacMahon, K. G.
Mbonu, G. O.
McDonald, G. K.
Melinsky, M. M.
Mensah, F. K.
Mervitz, M.
Misra, S. S.
Moulton, G. F.
Myers, M. L.
Naito, K.
Nigam, R.
Nishiyama, Dr. C.
Nnadi, O. T.
Odukoya, M. A.
Olubodun, S. O.
Ong Sing Sean
Onyido, U.
Osuagwu, S. A.
Owen, D. P.
Pal, S. C.
Pang Pooi Yeng
Philpott, Prof. B. P.
Prager, J.
Prentis, M. R.
Probert, D. H.
Reid, G. L.
Rey, J. M. F.

Robertson, B. S.
Robinson, B. B.
Rodrigues, F. V.
Saksena, Prof. K. B.
Shirley, E. A.
Stuvel, G.
Tiplady, J.
Uzoma, J. D.
Van Den Bold, J. P.
Velez-Montes, M. A.
Webb, L. R.
Welham, P. J.
Wilson, R. M.
Wilson, W.
Woodhead, J. K.
Yanney, F. M.

THE following have been admitted to Library Membership of the Society:

Adelaide Teachers' College, Adelaide, South Australia.
Agricultural Economics Research Institute in the Netherlands, The Hague, Netherlands.
Banco di Napoli, Direzione Generale, Naples, Italy.
Bolsa de Comercio de Buenos Aires, Argentina.
Boni Watkins Jason & Co. Inc., New York 5, U.S.A.
British Railways School of Transport, Derby.
Centro Studi Economici e Sociali, Rome, Italy.
Delta College Library, Saginaw, Michigan, U.S.A.
Economic Research Institute, Dublin, Ireland.
Librairies des Universités, S.E.D.E.S. Documentation, Paris.
Mond Nickel Co. Ltd., London, S.W.1.
National Library of Australia, Canberra A.C.T., Australia.
National University of Iran, Teheran, Iran.
N.E. Mutual Life Insurance Co., Boston 17, Mass., U.S.A.
Norges Landbrukshögskole, Vollebekk, Norway.
Orange County State College, Fullerton, California, U.S.A.
Republic of the Philippines Joint Executive Tax Commission, Manila, Philippines.
Societa Terni, Segretaria Generale, Rome, Italy.
State Bank of Pakistan, Dacca, Pakistan.
Stichting Econ. Onderzoek, Amsterdam, Netherlands.
University of Peshawar, Dept. of Economics, Peshawar, Pakistan.
University of South Dakota, Vermillion, S. Dakota, U.S.A.
Waldo Library, Western Michigan University, Kalamazoo, Mich., U.S.A.
West Wilts. & Trowbridge College of Further Education, Trowbridge, Wilts.
Western Illinois University, Macomb, Illinois, U.S.A.

RECENT PERIODICALS AND NEW BOOKS

Applied Statistics

VOL. IX, NO. 3, NOVEMBER 1960. *Stock Control Problems; Some Fallacies in their Current Treatment:* E. DUCKWORTH. *Classification Procedures Based on Bayes's Formula:* A. BIRNBAUM and A. E. MAXWELL. *Operational Statistics in Instrumental Analysis:* A. B. CALDER. *Physical Inventory using Sampling Methods:* M. R. BRYSON. *Analysis of Variance of a Balanced Incomplete Block Design with Missing Observations:* H. R. BAIRD and C. Y. KRAMER.

Economica

VOL. XXVIII, NO. 110, MAY 1961. *Alternative Views of Central Banking:* R. S. SAYERS. *Hire Purchase Controls and Fluctuations in the Car Market:* J. R. CUTHBERTSON. *The Relation between Profits and Wage Rates:* R. G. LIPSEY and M. D. STEUER. *Domestic Air Transport Policy—Part 1:* L. FOLDES. *Aspects of English Economic Growth in the First Half of the Eighteenth Century:* A. H. JOHN. *Alfred Marshall & Richard T. Ely: Some Unpublished Letters:* A. W. COATS. *A Plan for Increasing Liquidity: A Critique:* SIR ROY HARROD.

Review of Economic Studies

VOL. XXVIII, NO. 76, FEBRUARY 1961. *Prices and the Turnpike: 1. The Story of a Mare's Nest:* J. R. HICKS. *2. Proof of a Turnpike Theorem: The "No Joint Production Case":* M. MORISHIMA. *3. Paths of Economic Growth that are Optimal with Regard only to Final States; A Turnpike Theorem:* R. RADNER. *Stability of a Dynamic Input–Output System:* D. W. JORGENSON. *Neutral Inventions and the Stability of Growth Equilibrium:* H. UZAWA. *The Stability of the Cournot Oligopoly Solution: the Effects of Speeds of Adjustment and Increasing Marginal Costs:* F. M. FISHER. *Comments on the Stability of the Cournot Oligopoly Model:* M. MCMANUS and R. E. QUANDT.

Scottish Journal of Political Economy

VOL. VIII, NO. 2, JUNE 1961. *Programmes as Instruments of Co-ordination:* A. K. CAIRNCROSS. *A Fair Day's Work:* H. BEHREND. *Mr. Sraffa's Rehabilitation of Classical Economics:* R. L. MEEK. *The Church and Social Reform:* R. H. CAMPBELL. *Indices of House-building in the Manchester Conurbation, South Wales and Great Britain, 1851–1913:* J. PARRY LEWIS. *Recent Economic Trends: Economic Trends in North East Scotland:* F. E. LIVESEY.

Yorkshire Bulletin of Economic and Social Research

VOL. 13, NO. 1, MAY 1961. *Economic Environment and Development Programmes:* J. S. G. WILSON. *"Take-off" Considered in an African Setting:* W. T. NEWLYN. *Economic Separatism versus a Common Market in Developing Countries:* A. J. BROWN. *Development Corporations:* A. H. HANSON. *Some Retarding Factors in the British Economy before 1914:* JOHN SAVILLE.

Bulletin of the Oxford University Institute of Statistics

VOL. 23, NO. 1, FEBRUARY 1961. *Wage Rounds, 1948–1959:* K. G. J. C. KNOWLES and E. M. F. THORNE. *Britain, The Commonwealth and Europe:* M. F. G. SCOTT. *Re-estimation of the Econometric Model of the U.K. and Forecasts for 1961:* L. R. KLEIN, A. HAZLEWOOD and P. VANDOME. *A Post Mortem on Econometric Forecasts for 1959:* A. HAZLEWOOD and P. VANDOME. *The Distribution of Personal Wealth in Britain:* H. F. LYDALL and D. G. TIPPING.

National Institute Economic Review

NO. 14, MARCH 1961. *The Economic Situation. Britain's Falling Share of Sterling Area Imports. The Burden of Taxation: An International Comparison. Statistical Appendix.*

NO. 15, MAY 1961. *The Economic Situation. Aid to Underdeveloped Countries. British Imports of Manufactures. Statistical Appendix.*

The Journal of Industrial Economics

VOL. IX, No. 2, APRIL 1961. *Advertising Effectiveness, Brand Switching and Market Dynamics:* R. B. MAFFEI. *Market Performance in the Synthetic Rubber Industry:* C. F. PHILLIPS. *Government Promotion of Monopoly Power: an Examination of the Sale of the Synthetic Rubber Industry:* S. E. BOYLE. *Supply Shifts and Iron Ore Pricing:* W. I. GREENWALD. *An Economic Comparison of the Textile Industries in the U.S.A. and the U.K.:* P. A. MARS.

London and Cambridge Economic Bulletin

No. 38, JUNE 1961. *Sustainable Growth:* R. C. TRESS and J. MILES FLEMING. *The Northern Ireland Economy:* S. R. DENNISON. *Home Finance—The Impact of the Budget:* H. ROSE. *International Finance:* H. H. LIESNER. *Prices and Wages:* J. R. CROSSLEY.

The Economic History Review

VOL. XIII, No. 3, APRIL 1961. *English Merchant Shipping at the End of the Middle Ages: Some East Coast Evidence:* G. V. SCAMMELL. *The Rise of a Colonial Gentry: A Case Study of Antigua, 1730–1775:* R. B. SHERIDAN. *The Productivity of Capital in the Lancashire Cotton Industry during the Nineteenth Century:* M. BLAUG. *The Nottinghamshire Reformers and their Contribution to the New Poor Law:* J. D. MARSHALL. *The Rising Standard of Living in England, 1800–1850:* R. M. HARTWELL. *The Great Depression of English Agriculture 1873–1896:* T. W. FLETCHER.

Political Studies

VOL. VIII, No. 3, OCTOBER 1960. *Rousseau on the General Will and the Legislator:* THEODORE WALDMAN. *Ramsay MacDonald and Britain's Domestic Politics and Foreign Relations, 1919–1931:* M. S. VENKATARAMANI. *Towards an Explanation of McCarthyism:* NELSON W. POLSBY. *The Scottish Committees of the House of Commons 1948–1959:* J. H. BURNS.

VOL. IX, No. 1, FEBRUARY 1961. *Money and Election Law:* RICHARD ROSE. *The Political Élite in Australia:* S. ENCEL. *"Group Analysis" and Scientism in Political Studies:* R. S. PARKER.

International Affairs

VOL. 37, No. 2, APRIL 1961. *Munich Reconsidered: A Survey of British Policy:* SIR CHARLES WEBSTER. *Interdependence: The British Role:* THE RIGHT HON. THE EARL OF HOME. *Impressions of Afghanistan and Pakistan's North-West Frontier in Relation to the Communist World:* ARNOLD TOYNBEE. *The Expanding United Nations. II—Diplomatic Pressures and Techniques:* GEOFFREY GOODWIN. *The Precedent of the Congo:* PATRICK O'DONOVAN. *Dilemmas of Political Leadership in the Arab Middle East—The Case of the U.A.R.:* P. J. VATIKIOTIS.

The Journal of Agricultural Economics

VOL. XIV, No. 3, MAY 1961. *Economics and Animal Husbandry:* K. L. BLAXTER. *The Farm Economist and Crop Experimentation:* M. MCG. COOPER. *The Organisation of Agricultural Experimentation:* P. J. MACFARLAN. *Technical and Economic Optima in Peasant Agriculture:* E. S. CLAYTON. *The Problem of Periodic Re-organisation in American Agriculture:* Q. W. LINDSEY. *The Eastern Regional Marketing Board, Nigeria:* J. H. SMITH.

British Tax Review

VOL. 81, No. 148, MARCH–APRIL 1961. *The Budget, 1961:* G. S. A. WHEATCROFT. *Taxation and the Ownership of Real Property—II:* S. T. CRUMP. *The Income Tax Fantasy:* W. PHILLIPS. *United States Taxation of Non-resident Citizens:* H. R. KENT.

Bank of England

VOL. I, No. 2, MARCH 1961. *Extract from the Governor's Speech to the Institute of Bankers in Scotland. Refinancing of Medium-term Export Credits. International Monetary Fund: Acceptance by the United Kingdom of the Obligations of Article VIII. Leads and Lags in Overseas Trade.*

The Banker

VOL. CXI, No. 422, APRIL 1961. *Sterling after the Storm. Europe—Moment of Truth:* M. H. FISHER. *Accelerating France's Expansion:* M. A. HEILPERIN. *American Banks on a Looser Rein. Scots Economy—Brighter Prospects?*

VOL. CXI, No. 423, MAY 1961. *Switching to Fiscal Controls. Germany on the Knife-edge:* K. RICHERÄCHER. *Should the Banks Disclose their Inner Reserves? Building Societies and Bank Rate:* G. LEE. *Diversification in Wales:* E. V. MORGAN.

VOL. CXI, No. 424, JUNE 1961. *Recipes for Fewer Panics. Dollars—Hard, Soft and Euro:* C. GORDON TETHER. *New Disciplines for State Boards. South Africa Faces its Crisis. New Zealand Back in the Red:* J. D. S. MACLEOD. *Hidden Reserves—Sheer Sophistry:* SIR OSCAR HOBSON. *Charting the World Economy.*

The Bankers' Magazine

VOL. CXCI, No. 1405, APRIL 1961. *Is the Government Spending too Much? I. The Case for Curtailment:* A. GREEN. *II. The Arguments Appraised:* K. KLAPPHOLZ. *The Finance of Small and Big Business:* J. BATES. *Building Society Lending:* M. RIX. *The Financial and Economic Experience of the Irish Republic in 1960:* G. A. DUNCAN. *New Methods in Banking —XI:* R. HINDLE. *Bank Salaries:* J. L. HORNBY. *Economic Conditions in Western Europe.*

VOL. CXCI, No. 1406, MAY 1961. *Economic Survey 1961. The Budget:* C. W. MCMAHON. *Balance of Payments White Paper: I. The External Position:* M. D. STEUER; *II. Behind the Figures:* T. M. RYBCZYNSKI. *Staff Associations and the Union: A Summing Up:* R. MARSH. *Recent Legal Decisions of Interest to Bankers:* J. M. HOLDEN.

VOL. CXCI, No. 1407, JUNE 1961. *Are the Banks Losing Deposits? Short-term Money Markets in Australia and New Zealand:* JOHN D. S. MACLEOD. *Clark, Grimond and Growth:* KURT KLAPPHOLZ. *Economic Report from the U.S.A. Survey of Economic Conditions in Eastern Europe:* DUBRAVKO MATKO. *Prospects for Raw Material Prices:* K. JONES.

Barclays Bank Review

VOL. XXVI, No. 2, MAY 1961. *Some Thoughts on the Budget:* A. TUKE. *Central Banking Co-operation. Developments in European Resources of Energy.*

District Bank Review

No. 138, JUNE 1961. *The 1961 Budget—and After:* A. R. PREST. *Progress in British Farming Efficiency:* F. STURROCK.

Lloyds Bank Review

No. 60, APRIL 1961. *The Past and Future of Public Spending:* A. T. PEACOCK and J. WISEMAN. *The Control of Public Expenditure:* U. K. HICKS. *World Trade in Invisibles:* E. DEVONS.

Midland Bank Review

MAY 1961. *The Building and Construction Industries Today. Annual Monetary Survey—No. 12 —Year to April, 1961. Graphical Survey. Business Conditions in Scotland. Government and Business—Quarterly Summary No. 62.*

National Provincial Bank Review

No. 54, MAY 1961. *The Shipbuilding Industry of Great Britain:* R. C. THOMPSON. *Industrial Developments in South Wales:* W. E. MINCHINTON. *Government Financial Assistance to Farmers.*

Westminster Bank Review

MAY 1961. *Factors in the Balance of Payments Problem:* A. R. CONAN. *Planning Permission Secured. Observations on the Budget. The Soviet Economy in the Fifties:* F. SETON. *Expansion on Sound Lines: Thoughts on Agricultural Policy:* J. T. BERESFORD.

Planning

VOL. XXVII, No. 451, MARCH 1961. *Four Approaches to the European Problem.*

VOL. XXVII, No. 452, MAY 1961. *The Cost of the Roads.*

Town and Country Planning

VOL. XXIX, No. 4, APRIL 1961. *The Conqueror City:* F. J. OSBORN. *Tees-side: A Problem in Economic Growth:* J. W. HOUSE. *Crisis in Parkdale:* E. W. HODGE. *Tapiola:* D. E. C. EVERSLEY. *New Land for Old:* U. A. COATES.

Journal of the Institute of Transport

VOL. 29, NO. 3, MARCH 1961. *Organisation:* H. C. JOHNSON. *Brancker Memorial Lecture: Aviation—the Next Stage?:* SIR RALPH COCHRANE. *The Planning and Execution of Railway Engineering Works in Relation to Traffic Requirements:* I. M. CAMPBELL. *Government Administration of Transport in New Zealand:* R. J. POLASCHEK.

VOL. 29, NO. 4, MAY 1961. *Mass Transportation in the Future:* L. C. HAWKINS. *Annual Shipping Lecture: The Protecting and Indemnity Clubs:* T. S. WILDING. *The Traction Unit in Railway Modernisation:* C. R. BENNETT. *Lighterage in London:* H. P. ROBOTTOM.

Progress

VOL. 48, NO. 268, MARCH 1961. *The Green Gold of Finland:* R. VON FIRANDT. *Investment in Education in Nigeria:* SIR ERIC ASHBY. *First Night for New Products: A Survey of Trade Fairs:* H. GROSS. *From Small Beginnings: The Use of Pilot Plant:* M. B. DONALD. *Modern Trends in Industrial Building:* H. KRULL.

Statistical and Economic Review (The United Africa Company)

NO. 25, MARCH 1961. *The Co-ordination of Transport in Tropical Africa. African Produce in the World Market—Oil Palm Produce.*

Hard Fibres

NO. 40, MARCH 1961. *World Fibre Position. London Stock Exchange Quotations. Retrospect and Prospect. The Future of the United States Cordage Industry.*

Steel Review

NO. 22, APRIL 1961. *Expanding Britain's Home Ore Production:* M. STEWART. *One Quarter of the World:* H. W. A. WARING. *Cartels and Concentrations in the Egg:* R. BAILEY. *All Roads Lead to Newport (Area Survey):* C. PRITCHARD.

Which?

FEBRUARY 1961. *Cheap Washing Machines. Toilet Soap. Razor Blades. Funerals. Cut Flower Preservatives.*

MARCH 1961. *Baby Pants. Moisture Creams and Lotions. Potato Peelers. Defroster. Book Clubs.*

APRIL 1961. *Loans for Houses. Nappies. Car Batteries.*

MAY 1961. *Anti-theft Devices. Hire Purchase. Electric Blanket. Instant Coffee. Slide Rules. Cut Prices.*

JUNE 1961. *Lawn Weedkillers. Drip-dry Shirts. Slimming Foods. Car Hire.*

Motor Business

NO. 26, APRIL 1961. *The Market for Vehicles and Tractors in Belgium and the Netherlands. The United Kingdom Tyre Industry. The Ownership of the World Motor Industry—Part II. Used Car Prices.*

The Economic Record

VOL. 37, NO. 77, MARCH 1961. *The Australian Economy, March 1961:* P. F. KARMEL. *Restrictive Practices and Monopolies in Australia:* ALEX. HUNTER. *The Radcliffe Report: A Distant View:* D. C. ROWAN. *Tariffs, Protection and the Terms of Trade:* I. A. MCDOUGALL. *The Meaning of Production Indexes:* F. B. HORNER.

The South African Journal of Economics

VOL. 29, NO. 1, MARCH 1961. *Political and Economic Aspects of Planning of the National Economy in the U.S.S.R. and the Soviet Bloc:* K. HULIČKA. *Higher Productivity and Higher Wages of Native Labour in South Africa:* S. P. VILJOEN. *Comment:* W. F. J. STEENKAMP. *Professor Wijnhold's Budget Theory of Money (Review Article):* D. J. J. BOTHA.

Finance and Trade Review (Volkskas Limited)

VOL. IV, NO. 4, DECEMBER 1960. *Some Basic Remarks on the Relationship between Economic Development and the Balance of Payments:* G. MARAIS. *The Impact of the Bantu on Consumer Markets and Purchasing Power:* H. J. J. REYNDERS and M. VAN DEN BERG.

The Canadian Journal of Economics and Political Science

VOL. 27, NO. 2, MAY 1961. *Conservatives, Liberals, and Labour in the 1880's:* BERNARD OTTEY. *Immigration into Canada, 1851–1920:* DUNCAN M. MCDOUGALL. *Marshall and Slutsky on the Theory of Demand:* H. H. LIEBHAFSKY. *Capitalization and Profitability in Canadian Banking:* B. J. MOORE. *Monetary Policies in the United States since 1950: Some Implications of the Retreat to Orthodoxy:* ERVIN MILLER. *Intra-Party Democracy: A Case Study:* DAVID HOFFMAN. *The Representative Firm and Imperfect Competition:* SAMUEL HOLLANDER.

Tata Quarterly

VOL. XVI, NO. 1, OCTOBER 1960–JANUARY 1961. *A Critique of Export-Fatalism. Economic and Financial Review, July–September 1960; October–December 1960.* Statistical Tables.

Population Review

VOL. 5, NO. 1, JANUARY 1961. *India's Population:* PANDIT JAWAHARLAL NEHRU. *Population Explosion:* M. C. CHAGLA. *Population Growth and Economic Development in India:* S. CHANDRASEKHAR. *A Socio-Economic Survey of a Population Group in Relation to Family Planning:* K. T. RANADIVE, K. G. SHANBAG and K. J. GUJARATHI. *Economic Implications of the Projected Growth of the School-going Population of Ceylon:* S. SELVARATNAM. *A Census Design for Afghanistan:* NAJIBULLAH AMERKHAIL. *Family Planning and Rural Administration in Madras State.*

Economic Digest

VOL. 3, NO. 4, WINTER 1960. *Reflections on Economic Development:* W. A. LEWIS. *Welfare Economics and Development:* M. F. MILLIKAN. *The Investment Multiplier:* P. HASAN. *"Deficit Financing in Pakistan"—A Summary:* A. RAHMAN KHAN. *A Comment on Input–Output Analysis:* S. M. NASREM.

The East African Economics Review

VOL. 7, NO. 2, DECEMBER 1960. *From Currency Board to Central Bank:* J. B. LOYNES. *A Comment on the Report of the Committee on the Organisation of Agriculture:* A. T. BROUGH. *Further Thoughts on the Classical Theory of International Trade and the Underdeveloped Economies:* A. P. WALSHE. *Why Organise Agriculture?:* N. S. CAREY JONES. *The Operation of Unit Trusts and their Suitability for East Africa:* P. K. LOMAS.

The National and Grindlay's Review

VOL. 7, NO. 2, APRIL 1961. *India on the Threshold of her Third Plan. East Africa's Common Market. Commodities and Other Market Trends. A Report on the First Quarter of 1961.*

Social and Economic Studies

VOL. 10, NO. 1, MARCH 1961. *Comments on "The Economic Future of British Guiana," by Peter Newman:* K. BERRILL, A. P. THORNE, G. E. CUMPER and K. E. BOULDING. *Epilogue on British Guiana:* P. NEWMAN. *Export Stimulation, Import Substitution and Latin-American Development:* G. M. MEIER. *Note on "Spurt" Inflation:* J. H. ADLER. *Socio-Economic Factors and Family Form:* S. M. GREENFIELD. *Emerging Elites and Culture Change:* I. ADAMS and J. MASUOKA.

The Irish Banking Review

MARCH 1961. *Prospects for 1961. The Need for Structural Change in Irish Industry:* L. RYAN. *The Money Supply in Mature and in Developing Countries:* E. E. JUCKER-FLEETWOOD.

International Labour Review

VOL. LXXXIII, NO. 4, APRIL 1961. *International Standards and Asian Countries. Aspects of Australian Trade Unionism:* O. DE R. FORNANDER. *Discrimination against Older Workers:* H. L. DOUSE. *Employment Opportunities for Women in France:* S. TROISGROS. *Projections of Population and Labour Force.*

VOL. LXXXIII, NO. 5, MAY 1961. *The I.L.O. and International Technical Co-operation:* J. RENS. *The Effect of Public Investment Policy in Some Economically Developed Countries:* S. PLEASE. *Communications between Management and Workers in the Petroleum Industry. Technical Progress and the Employment and Training of the Young.*

International Financial Statistics

VOL. XIV, No. 3, MARCH 1961. *Net IMF Position in Monetary Surveys Completed for all Countries. List of Convertible Currencies. International Comparison of Changes in Cost of Living.* Usual Statistical Material.
VOL. XIV, No. 4, APRIL 1961. Usual Statistical Material.
VOL. XIV, No. 5, MAY 1961. Usual Statistical Material.
SUPPLEMENT TO 1961/2 ISSUES. *Data for earlier periods comparable to those now published: 1937, 1948 to 1951, and the quarters of 1957 and 1958.*

United Nations Economic Bulletin for Asia and the Far East

VOL. XI, No. 4, 1961. *The ECAFE Region in 1960. Public Finance in the Postwar Period.*

United Nations Economic Bulletin for Africa

VOL. 1, No. 1, JANUARY 1961. (This is the first volume of a new series to be published by the United Nations Economic Commission for Africa at Addis Ababa, Ethiopia.) *Current Economic Trends. Institutional Changes in the Field of Foreign Trade and Payments, Money and Banking. Survey of Development Programmes and Policies in Selected African Countries and Territories. Economic Developments in the Republic of the Congo (Leopoldville), 1957–60.*

Productivity Measurement Review

No. 22–23, AUGUST–NOVEMBER 1960. *Productivity—Notes on a Tantalizing Concept:* H. B. THORELLI. *Operational Research in Industry:* A. W. SWAN. *Productivity Analysis and Determination of Optimum Size in Interfirm Comparisons:* TRAN VAN QUANG. *An International Comparison in the Tomato Concentrate Industry:* B. FAJON.

Public Finance

VOL. XV, No. 3–4, 1960. *Aspects of Property Taxation:* B. HANSEN. *Vermögensbesteurung:* W. ALBERS. *Die Vermögenssteuern in der Schweiz:* W. BICKEL. *L'impôt sur le capital:* R. BLANCHER. *Taxes in Property:* J. G. DETIGER. *Net Worth Taxation:* J. F. DUE. *Analyse des impôts sur le capital en Belgique:* M. FRANK. *Death Duties in Britain:* A. A. TAIT.

Kyklos

VOL. XIV, No. 2, 1961. *Some Problems in the Theory of Growth and Planning Policy:* MAURICE DOBB. *The International Disequilibrium System:* ROBERT A. MUNDELL. *Marktspaltungen:* HANS WILLGERODT. *Indicators for the National Accounts in Underdeveloped Countries:* ENRIQUE LERDAU. *Prolegomena to a Theory of Social Change:* E. K. FRANCIS. *The Stages of Economic Growth:* P. A. BARAN and E. J. HOBSBAWM.

The American Economic Review

VOL. LI, No. 1, MARCH 1961. *Investment in Human Capital:* T. W. SCHULTZ. *Comparative Advantage and Development Policy:* H. B. CHENERY. *The Differential Effects of Tight Money:* G. L. BACH and C. J. HUIZENGA. *Variability in Earnings: Price Ratios:* H. BENISHAY. *Financial Intermediaries and Monetary Theory:* D. PATINKIN. *The Reform and Revaluation of the Ruble:* M. BORNSTEIN. *Some Comments on "Growth":* H. H. VILLARD.
VOL. LI, No. 2, MAY 1961. *Papers and Proceedings of the Seventy-third Annual Meeting of the American Economic Association.*

Annals of the American Academy of Political and Social Science

VOL. 334, MARCH 1961. *Latin America's Nationalistic Revolutions.*
VOL. 335, MAY 1961. *The Rising Demand for International Education.*

The Quarterly Journal of Economics

VOL. LXXV, No. 2, MAY 1961. *Some Econometrics of Growth: Great Ratios of Economics:* L. R. KLEIN and R. F. KOSOBUD. *The Economics of Disequilibrium Price:* R. ROBINSON. *An Econometric Study of the Production Decision:* J. JOHNSTON. *Co-ordination Assumptions and Multiple Equilibria:* J. N. WOLFE. *Integration, Concentration, and Profits in Manufacturing Industries:* V. R. FUCHS. *Ricardo and Thornton on the Transfer Mechanism:* H. G. GRUBEL. *Real Balances and the Permanent Income Hypothesis:* L. E. GALLAWAY and P. E. SMITH.

The Journal of Political Economy

VOL. LXIX, NO. 1, FEBRUARY 1961. *Statistical Tests of Rival Monetary Rules:* M. BRONFENBRENNER. *Market Practices and Collective Bargaining in Automotive Parts:* K. ALEXANDER. *Economic Factors in Specie Resumption: The United States, 1865–79:* J. K. KINDAHL. *Counterspeculation and the Forward Exchange Market:* J. H. AUTEN. *Gurley and Shaw on Money in a Theory of Finance:* A. L. MARTY. *Volume Discounts as Barriers to Entry and Access:* R. C. BROOKS. *Inflation as a Tax in World War II:* R. TURVEY.

VOL. LXIX, NO. 2, APRIL 1961. *The Evaluation of Public Services:* F. FORTE and J. M. BUCHANAN. *The Financial Development of Japan, 1878–1958:* D. J. OTT. *Correct Public Prediction and the Stability of Equilibrium:* E. A. DEVLETOGLOU. *How Income Ought to be Distributed: Paradox Lost:* F. M. FISHER and J. ROTHENBERG.

Review of Economics and Statistics

VOL. XLIII, NO. 1, FEBRUARY 1961. *Employment, Growth and Price Levels: A Review Article:* H. P. MINSKY. *The Appraisal of Road Construction Projects: A Practical Example:* H. C. BOS and L. M. KOYCK. *Pitfalls in Contracyclical Policies: Some Tools and Results:* W. J. BAUMOL. *The Relationship of Saving to the Rate of Interest, Real Income and Expected Future Prices:* D. V. T. BEAR. *Comparability of Estimates of the Industrial Distribution of Employment:* J. P. HENDERSON. *A Suggested Framework for Monetary–Fiscal Analysis:* J. R. SCHLESINGER. *Models of Capital Accumulation and Economic Instability:* T. IWAND.

Industrial and Labor Relations Review

VOL. 14, NO. 3, APRIL 1961. *Local Independent Unions and the American Labor Movement:* L. TROY. *An Analytical Framework for Labor Relations Law:* S. COHEN. *Proposals for Federal Aid to Depressed Industrial Areas: A Critique:* L. E. GALLAWAY. *The Workers' Councils in Poland:* A. STURMTHAL. *The Trade Union in Soviet Social Insurance: Historical Development and Present Functions:* G. V. RIMLINGER. *A Problem for Union Democracy: Officers' Attitudes Toward Union Members:* H. A. LANDSBERGER and C. L. HULIN. *Labor Mobility in Three Southern States:* R. L. BUNTING, L. D. ASHBY and P. A. PROSPER.

The Southern Economic Journal

VOL. XXVII, NO. 4, APRIL 1961. *Methodology in Economics—Part II:* F. H. KNIGHT. *The Effects of a Customs Union in Western Europe:* D. D. HUMPHREY. *Food Constraints on Industrial Development in Poor Countries:* S. ENKE. *On the Theory of Demand for Consumer Durables:* H. L. MILLER. *Product Rate Discrimination in Motor Trucking:* W. D. MAXWELL. *Price Discrimination in Law and Economics:* L. S. KEYES. *Some Economic Aspects of the Domestic Slave Trade, 1830–1860:* R. EVANS. *The Academic Status of the Economic Scholar in the South:* P. HEIM.

The Journal of Economic History

VOL. XXI, NO. 1, MARCH 1961. *Egypt Since 1800: A Study in Lopsided Development:* C. ISSAWI. *The Trustee Savings Banks, 1817–1861:* A. FISHLOW. *Materials for the Study of the Economic History of Modern China:* A. FEUERWERKER. *Russian Peasants in the Factory, 1892–1904:* T. H. VON LAUE.

Economic Geography

VOL. 37, NO. 2, APRIL 1961. *Changes in the Location Pattern of the Anglo-American Steel Industry: 1948–1959:* G. ALEXANDERSSON. *Farm Consolidation and Improvement in the Netherlands: An Example from the Land van Maas en Waal:* A. M. LAMBERT. *Wholesale–Retail Trade Ratios as Indices of Urban Centrality:* W. R. SIDDALL. *Location and Relocation of a Tree Crop—English Walnuts in California:* K. THOMPSON. *The Concord Grape Industry of the Chatauqua–Erie Area:* R. E. DAHLBERG. *The Milk Industry in Northern Ireland:* F. W. BOAL and B. S. MCAODHA. *On Perks and Pokes:* A. H. ROBINSON.

Journal of the American Statistical Association

VOL. 56, NO. 293, MARCH 1961. *Cooperation Among Statistical and Other Societies:* MORRIS H. HANSEN. *Some Nonparametric Tests for Comovements Between Time Series:* LEO A. GOODMAN

and YEHUDA GRUNFELD. *Some Aspects of Seasonality in the Consumer Price Index:* H. E. RILEY. *Almost Linearly-Optimum Combination of Unbiased Estimates:* MAX HALPERIN. *Bias in Estimates of the U.S. Nonwhite Population as Indicated by Trends in Death Rates:* RICHARD F. TOMASSON. *Multiple Comparisons Among Means:* OLIVE JEAN DUNN. *On Some Measures of Food Marketing Services:* GEORGE W. LADD. *Unbiased Ratio Estimators in Stratified Sampling:* JOSE NEITO DE PASCUAL. *A Reproducible Method of Counting Persons of Spanish Surname:* ROBERT W. BUECHLEY. *Residual Analysis:* RUDOLF J. FREUND, RICHARD W. VAIL and C. W. CLUNIES-ROSS. *Note on Stepwise Least Squares:* ARTHUR S. GOLDBERGER and D. B. JOCHEMS. *A Parametric Estimate of the Standard Error in the Survival Rate:* FRED EDERER. *A Note on Follow-up for Survival in the Presence of Movement:* D. J. THOMPSON and D. KODLIN. *The Probability of Reversal Associated with a Test Procedure When Data are Incomplete:* BERNARD S. PASTERNACK and JUNJIRO OGAWA. *Variance Estimates in "Optimum" Sample Designs:* ALAN ROSS. *On Stabilizing the Binomial and Negative Binomial Variances:* NICO F. LAUBSCHER. *On Matching Lists by Samples:* DES RAJ. *Probability Table for Number of Runs of Signs of First Differences in Ordered Series:* EUGENE S. EDGINGTON.

Harvard Business Review

VOL. 39, NO. 1, JANUARY–FEBRUARY 1961. *Is Business Abandoning the Big City?:* GEORGE STERNLIEB. *Revisionist Theory of Leadership:* WARREN G. BENNIS. *The Importance of Being Human:* ALVIN PITCHER. *Mathematical Models in Capital Budgeting:* JAMES C. HETRICK. *New Patterns for Overseas Operations:* GILBERT H. CLEE and FRANKLIN A. LINDSAY. *Premeditated Merger:* GEORGE D. MCCARTHY. *Selecting Profitable Products:* JOHN T. O'MEARA, JR. *Specialize Your Salesmen!:* GEORGE N. KAHN and ABRAHAM SHUCHMAN. *The Management Politician:* STEPHEN B. MILES, JR. *Profits in Prose:* LANGLEY CARLETON KEYES. *Industrialism and World Society:* C. KERR, J. T. DUNLOP, F. HARVISON, and C. A. MYERS. *Questions in Company-operated Transport:* KENNETH U. FLOOD. *The Age of Massive Engineering:* PAUL O. GADDIS.

VOL. 39, NO. 2, APRIL 1961. *Arms Control Will not Cut Defense Costs:* T. C. SCHELLING. *Three Approaches to Organization:* EDWARD G. KOCH. *The American Image of Success:* RAPHAEL DEMOS. *Scientific Marketing: Ideal and Ordeal:* ALFRED R. OXENFELDT. *What Is an Executive Worth?:* ARCH PATTON. *Tests for Test Marketing:* BENJAMIN LIPSTEIN. *The Trojan Horse of Population Growth:* PETER L. BERNSTEIN. *Diseases that Make Whole Industries Sick:* LOUIS E. NEWMAN. *The Judgment Factor in Investment Decisions:* ROSS G. WALKER. *Econometrics for Management:* EDWARD G. BENNION. *The Mystique of Super-Salesmanship:* ROBERT N. MCMURRY. *More Value from Personnel Testing:* ANDREW H. SOUERWINE. *This Competitive World:* PETER F. DRUCKER. *The Case of the Befuddled Brewers:* STEPHEN A. GREYSER.

VOL. 39, NO. 3, MAY–JUNE 1961. *The Materials Age:* HENRY R. CLAUSER. *Business History for the Businessman:* ARTHUR M. JOHNSON. *Cooperation to Solve the Gold Problem:* HENRY C. WALLICH. *Prudent-manager Forecasting:* GERALD A. BUSCH. *Who's That?:* ROBERT N. ANTHONY and MARIAN V. SEARS. *Problem in Decentralized Financial Control:* JOHN DEARDEN. *More Government in Business:* JOHN J. CORSON. *Consumer Motivations in Black and White:* HENRY ALLEN BULLOCK. *How Not to Sell Your Company:* ROBERT L. CHAMBERS. *The Company Representative in Washington:* PAUL W. CHERRINGTON and RALPH L. GILLEN. *Reaction to University Development Programs:* KENNETH R. ANDREWS. *Purchasing for Profits:* DEAN S. AMMER. *The Case of the Perplexed President:* EDWARD E. FURASH.

The Journal of Accountancy

MARCH 1961. *Recording Lease Obligations:* J. L. HENNESSY. *Higher Accreditation for CPAs:* J. L. CAREY. *Notes to Financial Statements:* S. CHAN. *"Cash Flow" Analysis and Funds Statements:* P. MASON.

APRIL 1961. *Is Further Uniformity Desirable or Possible?:* M. E. PELOUBET. *Are Accounting Principles Generally Accepted?:* L. SPACEK. *Uniformity in Accounting Principles:* C. J. GAA. *The British Accounting Tradition in America:* M. E. MURPHY. *Special Farm Tax Problems:* R. L. BAKER.

MAY 1961. *Personnel Recruitment in the Small Firm:* K. W. PERRY and W. B. CUTTING. *Statistical Sampling Tables for Auditors:* R. G. BROWN. *Use of Insurance in Employee Compensation:* W. H. HOFFMAN. *What Does "Objectivity" Mean to Accountants?:* H. E. ARNETT.

The Journal of Law and Economics

VOL. III, OCTOBER 1960. *The Problems of Social Cost:* R. H. COASE. *The Intellectual History of Laissez Faire:* JACOB VINER. *The Shaftesbury Tradition in Conservative Politics:* THE RIGHT HONORABLE LORD KILMUIR. *Responsibility and the Modern Corporation:* WILBER G. KATZ. *Why Should Manufacturers Want Fair Trade?:* LESTER G. TELSER. *Minimum Wage Effects on Florida's Economic Development:* MARSHALL R. COLBERG. *Government Regulation and Union Power: A Case Study of the Boston Transit Industry:* MELVIN LURIE. *English Law and American Law on Monopolies and Restraints of Trade:* RICHARD C. BERNHARD. *Quantity Discounts and Competition: Economic Rationality or Robinson–Patman:* VICTOR E. FERRALL, JR.

Revue Économique

VOL. XII, No. 2, MARCH 1961. *Groupements de défense des consommateurs:* J. MEYNAUD. *Économie de la consommation:* G. ROTTIER. *La consommation française de 1950 à 1959:* J. ALBERT and C. MARBACH. *Comparaison des enquêtes "budgets de famille":* J. S. CRAMER. *Orientations bibliographiques:* J. CORNIC. *La consommation médicale:* G. RÖSCH. *La prévision de la consommation:* E.-A. LISLE.

VOL. XII, No. 3, MAY 1961. *Critères d'investissement et développement économique:* JACQUES DUVAUX. *Méthodes mathématiques et sciences de l'homme:* JACQUES AUSTRUY. *Hausse des salaires et stabilité des prix:* ROLAND TAVITIAN. *L'épargne institutionnelle:* JEAN LOTTE.

Revue de Science Financière

VOL. LIII, No. 2, APRIL 1961. *Évolution du système fiscal français au XX^e siècle:* A. GARRIGOU-LAGRANGE. *La formation de la créance fiscale:* J. DUFOUR. *Étude statistique sur la structure du groupe forfaitaire des B.I.C.:* J. CÉRÈZE. *Financement des entreprises et finances publiques:* A. LABOURDETTE. *L'autonomie financière et administrative des assemblées parlementaires en France:* C. BONÉFANT. *Chronique de finances étrangères:* J. LECAILLON.

Population

VOL. 16, No. 1, JANUARY–MARCH 1961. *Évolution générale de l'économie et de la population en France:* A. SAUVY. *Fécondité et famille. Modèles mathématiques (II):* L. HENRY. *Évolution récente de la fécondité des mariages dans les pays occidentaux:* J.-N. BIRABEN. *Quelques facteurs de formation et de développement d'un isolat:* D. FEREMBACH. *La contribution des historiens catalans à l'histoire de la démographie générale:* J. NADAL OLLER. *Recherches sur la fécondité biologique. Étude d'un groupe de familles nombreuses:* P. VINCENT.

Consommation

VOL. VIII, No. 1, JANUARY–MARCH 1961. *La consommation alimentaire en 1956:* J. DUMARD. *La consommation des boissons:* H. BROUSSE. *Estimation de la consommation intérieure française de lait, beurre et fromage, de 1791 à 1955:* J. DUMARD and M. GUILLOT. *Une enquête sur les dépenses médicales des ménages:* M. CHASSERANT.

Journal de la Société de Statistique de Paris

VOL. 101, No. 10–12, OCTOBER–DECEMBER 1960. *L'âge mûr de la Comptabilité Nationale:* E. MALINVAUD. *Chronique de démographie:* M. CROZE. *Chronique des statistiques bancaires et des questions monétaires:* P. CAUBOUE. *La crise du dollar et l'avenir de l'Occident:* P. COMBE. *Étude des relations logistiques entre les fréquences de deux phénomènes:* A. MILHAUD.

Annales de Sciences Économiques Appliquées

VOL. 19, No. 1, MARCH 1961. *A la mémoire de Monsieur le Professeur Sever Pop. Aperçu de la conjoncture économique en Belgique. Le financement des petites et moyennes entreprises:* A. DIRCKX. *L'avenir des études de marché:* R. VAN DEN DRIESSCHE. *La télévision commerciale:* J. MERCIER. *La Belgique adoptera-t-elle une politique de l'énergie?:* A. DESSART.

Cahiers Économiques de Bruxelles

No. 10, APRIL 1961. *Les revenus nationaux du monde non communiste:* J. P. DELAHAUT. *La production et l'investissement de régions flamande, wallonne et bruxelloise:* G. CHAPUT. *Du Benelux au Marché Commun:* D. LALOUX. *L'analyse économétrique et sa place dans l'histoire des doctrines économiques:* J. WAELBROECK. *Het verband tussen groei en betalingsbalans:* W. VAN RIJCKEGHEM. *Prévision d'expansion de la sidérurgie belge:* Y. LANGASKENS. *Les revenus des facteurs de production en Belgique:* H. GLEJSER.

Schmollers Jahrbuch

VOL. 81, No. 2, 1961. *Neue rationelle Wege zur Steigerung der ökonomischen und wissenschaftlichen Leistung des Westens:* A. KOKKALIS. *Beeinflussung von Konjunkturverlauf und Beschäftigungshöhe durch den technischen Fortschritt:* G. FRIEDRICHS. *Was bedeutet Strukturpolitik für Konjunktur und Wachstum? Ein wirtschaftspolitischer Versuch:* D. JAHN. *Wirtschaft und Gesellschaft in Japan II:* W. M. F. VON BISSING.

Jahrbücher für Nationalökonomie und Statistik

VOL. 173, No. 1, APRIL 1961. *Zur Theorie kollektiver Entscheidungen in der Wirtschaft:* G. GÄFGEN. *Zur demographischen Lage in der Welt, mit besonderer Berücksichtigung Japans, Schwedens und Italiens:* R. VON UNGERN-STERNBERG. *Unternehmerentscheidung bei vollkommener und unvollkommener Information:* G. KADE. *Ein politisches Modell zur Wirtschaftstheorie. Bemerkungen zu dem Versuch von Fred O. Harding:* H. G. SCHACHTSCHABEL.

VOL. 173, No. 2, MAY 1961. *Der Merkantilismus in Deutschland:* I. BOG. *Replik auf H. J. Jaksch und H. König "Zur Ordnung der Produktionsstruktur von Vielsektorenmodellen":* E. HELMSTÄDTER. *Neue Entwicklungstendenzen auf dem deutschen Kapitalmarkt:* H. O. LENEL. *Zur Währungspolitik der Deutschen Bundesbank:* G. ZEITEL.

Zeitschrift für die Gesamte Staatswissenschaft

VOL. 117, No. 1, MAY 1961. *Stadien wirtschaftlichen Wachstums und Probleme einer friedlichen Koexistenz:* W. W. ROSTOW. *Mikro- und Makroanalyse in der Standortslehre:* DYODI ESAWA. *Probleme einer gemischten Wirtschaftsordnung:* J. WERNER. *Anpassungsvorgänge im Gedankenexperiment:* D. JAHN. *Ein einfaches ökonometrisches Dezisionsmodell zur Beurteiling der quantitativen Auswirkungen einiger wirtschaftspolitischer Massnahmen für die Wirtschaft der Bundesrepublik:* H. GÜLICHER.

Wirtschaft und Statistik

NO. 3, MARCH 1961. *Der Staat als Teil der Volkswirtschaft 1930 bis 1959 (Weitere Ergebnisse der Volkswirtschaftlichen Gesamtrechnungen):* H. BARTELS and I. SIEVERS. *Einkommen und Einkommensteuer der Einkommensteuerpflichtigen:* H. HEINE. *Statistiche Umschau.*

NO. 4, APRIL 1961. *Das Programm der Volks- und Berufszählung 1961:* S. KOLLER, H. SCHUBNELL, K. SCHWARZ and H. SPERLING. *Die allgemeine Arbeitsstättenzählung 1961:* W. ANTON. *Die wohnungsstatistischen Feststellungen 1961:* A. SOBOTSCHINSKI. *Statistiche Umschau.*

NO. 5, MAY 1961. *Wandlungen im Arbeitskräftebestand der landwirtschaftlichen Betriebe von 1949 bis 1960:* W. SCHMIDT. *Das Eigentum am Kapital der deutschen Aktiengesellschaften:* R. BERNDSEN. *Die Qualität des Wohnungsbestandes:* M. EULER.

Vierteljahrshefte zur Wirtschaftsforschung

NO. 1, 1961. *Zur konjunkturellen Situation:* I. KÖHLER-RIECKENBERG and D. HISS. *Volkswirtschaftliche Gesamtrechnung einschl. Geldvermögensrechnung für die Bundesrepublik: Viertes Quartal und Jahr 1960:* K. D. ARNDT and O. DE LA CHEVALLERIE. *Anlage-Investitionen und Anlagevermögen der westdeutschen Industrie 1959 und 1960:* R. KRENGEL. *Die kurzfristige Kapazitätsausnutzungs-Rechnung des DIW:* D. MERTENS. *Betrachtungen zur Wirksamkeit der britischen Geld- und Kreditpolitik an Hand einer Geldvermögensrechnung für Grossbritannien:* M. TESCHNER. *Die Berechnungsmethoden des Sozialprodukts in der UdSSR:* A. KUEHN.

Wirtschaftsdienst (German text, English digest)

VOL. 41, No. 3, March 1961. *The Relativity of Relations. Aspects of the Consumer Goods Industries 1961. Accents of the Revaluation. Imperfect Synchronization between the Economies of West Europe and the United States:* O. H. EHRLICH.

VOL. 41, No. 4, APRIL 1961. *A Farewell to Cyclical Thinking. Capital Goods Industry and Economic Trend. The Investment "Climate" in the Common Market.*

VOL. 41, No. 5, MAY 1961. *Criteria fo rthe Living-standard in Developing Countries. The Socio-Historical Background of the Congo Crisis:* S. COMHAIRE-SILVAIN. *The Revaluation and Hamburg's Shipbuilding Industry:* H. MORGENBESSER.

Finanzarchiv

VOL. 21, No. 1, APRIL 1961. *Ideologie und Theorie des Haushaltsgleichgewichts:* F. K. MANN. *Staatsverschuldung und Geld- und Kreditpolitik:* W. ALBERS. *Zur mikroökonomischen Analyse der*

Überwälzbarkeit der Einkommensteuer und zur Frage der Übertragung von Modellergebnissen auf historische Tatbestände: H. ARNDT. *Vom Ursprung des Münzgeldes:* J. DOBRETSBERGER. *Der Finanzausgleich im schweizerischen Bundesstaat:* M. WEBER. *Methoden zur Ausschaltung der internationalen Doppelbesteuerung bei den direkten Steuern:* H. FLICK. *Verbrauchsteuerprogression und Wettbewerbsneutralität:* J. PETERSEN.

Jahrbuch für Sozialwissenschaft

VOL. 12, NO. 1, 1961. *Wirtschaftliches Bewusstsein und wirtschaftliche Wirklichkeit:* H. GIERSCH. *Die Qualität als Objekt der Wirtschaftswissenschaft:* S. KLATT. *Das Theorem der kumulativen Staatsintervention:* F. WILLEKE. *Die Geld-, Finanz- und Lohnpolitik im volkswirtschaftlichen Systemzusammenhang:* W. EHRLICHER.

Weltwirtschaftliches Archiv

VOL. 86, NO. 1, 1961. *Zur Interpretation des Artikels 65 des Montanvertrages:* S. L. GABRIEL. *Some Income and Wage Distribution Theories:* K. BJERKE. *A Note on Some Mechanics of the Absorption Approach:* W. R. ALLEN. *Zur Produktivitätsfunktion der finnischen Industrie:* O. E. NIITAMO. *Recent Developments in American Business Administration and Their Conceptualization:* A. D. CHANDLER.

Allgemeines Statistisches Archiv

VOL. 44, NO. 3, 1961. *Der Mikrozensus:* S. KOLLER and L. HERBERGER. *Aufgabe und Aufbau der Handels und Gaststättenzählung 1960:* R. SCHWEDA and R. SCHULZ. *Bedeutung und Grenzen der Statistik in der Meteorologie:* A. HOFMANN. *Die Problematik der Zahleinheit "selbstständige Wohnung":* F. ENGEL.

Deutsche Aussenpolitik

VOL. VI, NO. 3, MARCH 1961. *Kennedy muss sich entscheiden. Notstandsjustiz gegen deutsche Verständigung:* G. KÜHLIG. *UNESCO und DDR:* G. SCHEELE. *Weltbank dient Neokolonialismus:* W. KRESSE. *Die Algerien-Manöver de Gaulles:* G. BOUVARD. *Die Lösung der Westberlinfrage ist dringender denn je:* A. BERK. *Die Währungspolitik als Waffe des deutschen Imperialismus:* H. KÜHNE.

VOL. VI, NO. 4, APRIL 1961. *Wende zum Frieden:* J. ZELT. *Westeuropa im Wirbel Imperialistischer Widersprüche:* H. W. AUST. *Aufrüstung, Militarisierung, kalter Krieg und Bundeshaushalt:* E. KAEMMEL. *Gründung der Deutsch-Afrikanischen Gesellschaft in der DDR:* G. GÖTTING. *Der Rubel—eine feste und stabile Währung:* H. RICHTER.

Zeitschrift für Nationalökonomie

VOL. XXI, NO. 1, MARCH 1961. *The Changing Moral Temper of Economic Thought:* W. A. WEISSKOPF. *Erlangen, Produzieren, Konsumieren und die Rolle der Konsumgenossenschaften:* G. WEIPPERT. *Traditionelle und moderne Kostenkurven:* H. VON NATZMER. *Mathematische Planungsrechnung in der Makroökonomie:* H. WINKEL. *Die Struktur der Herstelldosten bei Vollautomation und permanenter Erzeugung:* A. BURGHARDT. *Zur Grundkonzeption der Wirtschaftslehre der Unternehmung:* K. ZLABEK.

Monatsberichte des Österreichischen Institutes für Wirtschaftsforschung

VOL. XXIV, NO. 3, MARCH 1961. *Die wirtschaftliche Lage in Österreich. Gesamtschau der österreichischen Wirtschaft im Jahre 1960. SUPPLEMENT: Steuerliche Belastung und Wegekosten des motorisierten Strassenverkehrs in Österreich.*

VOL. XXIV, NO. 4, APRIL 1961. *Die wirtschaftliche Lage in Österreich. Die österreichische Importstruktur. Der Bundeshaushalt 1960.*

VOL. XXIV, NO. 5, MAY 1961. *Die wirtschaftliche Lage in Österreich. Die Einteilung der Arbeitszeit in der österreichischen Industrie.*

Schweizerische Zeitschrift für Volkswirtschaft und Statistik

VOL. 97, NO. 1, MARCH 1961. *Monetary and Financial Problems of Certain New Countries in Africa:* E. E. JUCKER-FLEETWOOD. *Die Schuldenrückzahlungspolitik des Bundes in den Jahren 1947–1959:* M. HAUSER. *Einige Probleme mittel- und langfristiger Marktprognosen:* H. GERFIN. *Kritik einiger familiensoziologischer Begriffe im Lichte der politischen Arithmetik des 18. Jahrhunderts:* E. J. WALTER. *Bemerkungen zu Bombachs Aufsatz über Preisstabilität, wirtschaftliches Wachstum und Einkommensverteilung:* A. E. OTT. *Über den Einfluss der Wertschriftenemissionen auf die Zinsentwicklung:* J. NIEHANS.

De Economist

VOL. 109, NO. 3–4, MARCH–APRIL 1961. *Winstaandeel en economische groei:* H. J. WITTEVEEN. *Enige opmerkingen over het begrip omloopsnelheid:* J. E. NATER. *Factoranalyse in theorie en praktijk:* G. HAMMING, J. MOL and J. H. F. SCHILDERINCK. *Het economisch denken op het platteland vroeger en nu:* A. J. WICHERS. *Opmerkingen en aantekeningen:* I. J. SANDER. *Economische en sociale kroniek:* W. J. VAN DE WOESTIJNE.

VOL. 109, NO. 5, MAY 1961. *Alternative Views of Central Banking:* R. S. SAYERS. *De grenzen der toerekening:* C. J. OORT.

Ekonomisk Tidskrift (Swedish text)

VOL. LXIII, NO. 1, APRIL 1961. *National Economic View-points on Education:* I. SVENNILSON. *The Classical "Dichotomy":* A. LINDBECK. *Terms of Trade and Inflation:* B. KRAGH.

Skandinaviska Banken Quarterly Review

VOL. 42, NO. 2, APRIL 1961. *The World Bank and Private Enterprise:* B. THOMÉ. *Restrictive Practices and Commercial Policy in the Common Market:* A. HOLMBERG. *Business Firms between the Two European Trade Blocks:* W. PAUES.

Statsøkonomisk Tidsskrift

VOL. 75, NO. 1, MARCH 1961. *Einar Eriksen Kleppe: Foran 300-års jubileet for Europas første pengesedler. Economy and Economics of the East European Countries—Development and Applicability (II). Notes on the Economic Relations between the East European Countries:* KNUD ERIK SVENDSEN. *Economic Problems in a Rich Country: Capitalism versus Socialism:* LEIF JOHANSEN.

Nationalekonomisk Tidsskrift

VOL. 98, NO. 5–6, 1960. *Bankerne, Finansieringsinstitutterne og finansieringen af erhvervslivets:* P. INGHOLT. *Multiplikatorvirkningen af indirekte skatter:* J. VIBE-PEDERSEN. *Udenrigshandelens gevinst. 2 diskussionsindlæg:* K. VIND and E. OLSEN. *Det danske nationalprodukt siden 1870:* A. ØLGAARD.

Økonomi og Politik

VOL. 34, NO. 4, 1960. *Præsidentskiftet i USA:* J. LAURSEN. *Nye signaler i USAs økonomiske politik:* T. HJORTKJÆR. *Den internationale økonomiske situation. Den danske økonomiske situation.*

Ekonomiska Samfundets Tidskrift

VOL. 14, NO. 1, 1961. *Synpunkter på grekisk och egyptisk ekonomi:* C. A. J. GADOLIN. *Export i vardande:* C. G. TOLLET. *Synpunkter på sambandet mellan den klassiska pristeorin och den moderna parameterteorin:* A. MEINANDER. *Den tekniska utvecklingen som en faktor i den ekonomiska tillväxtprocessen:* I. TYRNI.

Liiketaloudellinen Aikakauskirja (Finnish text, English summaries)

VOL. 10, NO. 1, 1961. *Marketing in a Maturing Economy:* A. J. ALTON. *Investoinnin tuottoprosentti liikkeenjohdon tehokkuuden mittana:* JAAKKO HONKO. *Matematiikka ja taloustieteellinen tutkimus:* SAKARI MATTILA. *Osakeyhtiön rahastojen merkitys suhteessa osinganjakoon eri etupiirien kannalta:* LAURI DROCKILA. *Virkamiehen virkavastuusta:* L. KOTINIEMI. *Lääninverolautakunnista:* PERTTI SUURLA.

Giornale degli Economisti e Annali di Economia

VOL. XIX, NO. 11–12, NOVEMBER–DECEMBER 1960. *Intégration nationale et intégration européenne:* A. MARCHAL. *La componente esterna della liquidità e le regole della condotta monetaria:* P. BAFFI and A. OCCHUITO. *Di qualche origine delle previsioni inflazionistiche:* G. U. PAPI. *Per un sistema razionale delle imposte indirette:* L. ROSSI. *Politiche fiscali e commercio estero dei paesi sottosviluppati:* E. GERELLI. *Le "cronache" politiche ed economiche di Pareto:* T. GIACALONE-MONACO.

VOL. XX, NO. 1–2, JANUARY–FEBRUARY 1961. *I principi economici della finanza pubblica:* C. ARENA. *Numerical Determination of a Quadratic Preference Function for use in Macroeconomic Programming:* R. FRISCH. *Per la storia della finanza pubblica napoletana nel secolo XVIII: il costo della epidemia di peste di Reggio Calabria del 1743:* D. DEMARCO. *Sulla teoria della produzione come processo circolare:* C. NAPOLEONI. *La "economia della popolazione" di G. Mortara:* D. CANTARELLI.

Rivista di Politica Economica

VOL. LI, NO. 3, MARCH 1961. *Sulla sussistenza o meno del ciclo economico:* G. HABERLER. *Sulla relazione tra saggio di progresso tecnico e vita economica dei capitali fissi:* P. GAREGNANI. *Analisi dell'istruzione come capitale:* A. MARZANO. *Legislazione comunitaria e nazionale per la tutela della libertà di concorrenza:* T. ADDARIO. *Imprese americane operanti nel mezzogiorno ed esenzione decennale dalla R.M.:* R. LIZZUL. *Depositi fiduciari, circolazione monetaria e prestiti di guerra in Italia:* G. NICOTRA.

VOL. LI, NO. 4, APRIL 1961. *I progressi della teoria economica nel nostro tempo:* E. SCHNEIDER. *Teoria della politica economica e pianificazione:* F. PARRILLO. *Considerazione sull'industria cotoniera italiana:* A. LAZZATI. *Centrali del latte e municipalizzazione di pubblici servizi in una sentenza della Corte costituzionale:* M. B. VALSASSINA. *L'orientation économique dans la République arabe unie:* A. BARBITCH.

VOL. LI, NO. 5, MAY 1961. *Sul "dollar gap" degli Stati Uniti e sui suoi riflessi interni ed internazionali:* VENIERO DEL PUNTA. *Caratteri ed aspetti dell'economia moderna:* ODDONE FANTINI. *Dalla casa di vetro al dogma—La terza relazione del Ministero delle partecipazioni statali:* SALVATORE FERGOLA. *Sul concetto di equità nella distribuzione dell'assistenza finanziaria ai paesi in fase di sviluppo:* ROBERTO ZANELETTI.

Rassegna Economica

VOL. XXV, NO. 1, JANUARY–APRIL 1961. *Lo sviluppo economico delle zone arretrate e sottosviluppate con particolare riguardo alla industrializzazione e al miglioramento dell'agricoltura:* F. VITO. *L'aiuto sovietico ai Paesi sottosviluppati:* A. PIETTRE. *Sviluppo del "grande" dettaglio:* C. FABRIZI. *Tentativo di misurare la produttività del lavoro per grandi settori economici nelle provincie e regioni d'Italia:* G. TAGLIACARNE. *Esclusione del diritto di opzione e interesse sociale:* A. GRAZIANI. *SUPPLEMENT: Il conferimento della Laurea "Honoris causa" in Economia ad Epicarmo Corbino.*

Rivista Internazionale di Scienze Economiche e Commerciali

VOL. VIII, NO. 4, APRIL 1961. *La rivalutazione del marco:* ERICH PREISER. *Sulla rivalutazione del marco tedesco:* FRITZ MARBACH. *Parerga sulla politica economica dei paesi sottosviluppati:* DAVID CANTARELLI. *Significato politico economico e di gestione dei dati sulla economia societaria italiana (Redazione). Senso e misura degli investimenti di capitali esteri in Italia:* GIANCARLO ELIA VALORI. *Il mercato del denaro e dei capitali a Londra:* ETTORE BOMPARD.

VOL. VIII, NO. 5, MAY 1961. *Réflexions sur l'imposition des sociétés anonymes. Etude comparée:* HENRY LAUFENBURGER. *Il mercato del cambio estero dopo la rivalutazione del marco tedesco:* HERBERT J. ROSENSTERN. *Sui requisiti di una buona contabilità economica nazionale:* SERGIO RICOSSA. *Il presente in prospettiva: Le ideologie politiche negli Stati Uniti:* ANDREW M. SCOTT. *I problemi della viabilità alpina nel quadro dei traffici europei:* EUGENIO PAOLANTONIO. *Le valutazioni dell'Ufficio del Registro in sede di tassazione dell'atto di trasferimento:* LUIGI CESERANI.

Review of the Economic Conditions in Italy

VOL. XV, NO. 2, MARCH 1961. *Problems and Prospects of Italian Economy in the 'Sixties:* P. CAMPILLI. *The Private Oil Industry at the Service of the Italian Economy:* V. CAZZANIGA. *Regional Structure of Italian Economy. V:* F. MILONE.

Economia Internazionale

VOL. XIV, NO. 1, FEBRUARY 1961. *Umberto Ricci, economista:* V. DOMINEDÒ. *Investment Pattern, Techniques and Growth:* D. R. KHATKHATE. *A proposito di una critica al teorema del Barone sulla pressione comparata dell'imposta diretta e dell'imposta indiretta:* E. GERELLI. *I problemi economici della ricerca scientifica:* R. R. NELSON. *External Trade as an Engine of Growth:* J. E. HARING.

Metroeconomica

VOL. XIII, NO. 1, APRIL 1961. *Measuring Changes in Community Welfare:* C. E. FERGUSON. and A. M. MOORE. *Equilibrium Dynamics, Behavior Dynamics, Stability of Movement:* H. NEISSER. *A Model for Entrepreneurial Decisions under Free Competition:* J. L. DILLON and E. O. HEADY. *Viability and Stability in Linear Models:* P. NEWMAN.

Annali Della Facolta di Economia e Commercio

VOL. XIV, NO. 2, 1960. *Appunti sulla liceità della mediazione matrimoniale:* V. LOJACONO. *Di alcune stime statistiche e del metodo delle variabili strumentali:* G. LUNETTA. *Beni di consumo e beni strumentali nello studio della distribuzione e del comportamento del consumatore:* G. MORELLO.

L'Industria

NO. 1, JANUARY–MARCH 1961. *Causal Relationships and the Assumptions about the Latent Variables of Shock-models:* F. C. HOLTE. *Sull'inflazione strutturale da sviluppo concentrato:* M. RESTA. *Crisi dell'econometrica o errata impostazione metodologica?:* M. ARCELLI. *Aumenti di produttività e ragioni di scambio: recenti contributi al perfezionamento di un modello classico:* A. SDRALEVICH.

Italian Affairs

VOL. IX, NO. 6, NOVEMBER–DECEMBER 1960. *The National Committee for Productivity. Private Insurance in Italy. Private Consumer Trends in 1959. The International Labour Organisation. Municipalised Industry.*

El Trimestre Economico

VOL. XXVIII, NO. 109, JANUARY–MARCH 1961. *La responsabilidad de la economía y del economista:* V. L. URQUIDI. *Inflación y estabilización en los países subdesarrollados:* J. EPSTEIN. *Derecho económico:* E. COTTELY. *Condiciones y perspectivas de la agricultura mexicana:* M. A. DURÁN. *La acumulación y la función-producción:* J. ROBINSON. *El crecimiento económico y el problema de la inflación:* N. KALDOR. *Modelos de desarrollo industrial:* H. B. CHENERY.

Revista de Economia

VOL. XIII, NO. 2–3, JUNE–SEPTEMBER 1960. *Brasilian Finance and Credit Investment and Holding Companies:* R. VON GERSDORFF. *A Actudrio e a sua preparação:* A. C. MIRANDA. *A propósito da Unidade Económica Nacional e da Posição de Portugal perante a Cooperação das Economias Europeias:* V. MOREIRA.

Revista de Ciencias Económicas

VOL. XLVIII, NO. 12, OCTOBER–NOVEMBER–DECEMBER 1960. *El tratamiento del pago en la contabilidad del estado:* C. A. LICCIARDO. *El impuesto a los reditos y las sociedades de capital:* R. O. VIEIRO. *Prolegomenos a un desarrollo acelerado de la economia latinoamericana:* F. MANOLIU. *Primeras tratativas tendientes a concertar emprestitos en el exterior:* A. ESTÉVEZ and O. H. ELIA. *Significacion del trigo en el desarrollo argentino:* J. R. SCOBIE. *La sindicatura en la sociedad anonima: su desenvolvimiento en nuestro pais:* M. A. RODRÍGUEZ. *Que son los dividendos en acciones?:* H. ARCE. *Analisis de la relacion entre aumentos de salarios, produccion y precios:* R. MANTEL.

Economic Bulletin of the National Bank of Egypt

VOL. XIV, NO. 1, 1961. *Planning in the Northern Region. The Egyptian Economy During the Fifties 1: A. Note Issue; B. The Money Supply; C. Commercial Banks. Quarterly Economic Review.*

Asian Affairs

JANUARY 1961. SPECIAL EDITION: *12th Colombo Plan Consultative Committee Meeting in Tokyo. Colombo Plan Members Gathered in Tokyo. A Decade of Economic Aid to Less Developed Nations:* H. IKEDA. *What Japan has done for Colombo Plan:* H. SAKOMIZU. *A Proposition on Economic Co-operation:* Y. KUBOTA. *Economic Assistance to Developing Countries:* T. IHARA. *Technical Aid Best Form of Cooperation:* N. YAMAMOTO. *Japan and Economic Development of South-east Asia:* M. OGIWARA. *Japan is Urged to Give More Aid. Japan's Cooperation under the Colombo Plan.*

VOL. V, NO. 1, OCTOBER 1960. *Prospects and Tasks Ahead of World Economy:* S. HORIE. *Productivity Issues in Asia and New Regional Body:* K. TAKAGI. *Multi-Nation Approach to Aid Underdeveloped Countries:* Y. KAJITANI. *An Analysis of Sino-Soviet Economic Policy in Underdeveloped Areas:* S. ISHIKAWA. *External Debts Servicing Capacity of SE Asian Countries:* M. MIYATA. *Japan vs. SE Asian Countries over Trade in Rice:* J. SATO. *Overseas Chinese Problems in Southeast Asian Nations:* N. UCHIDA. *1960 Africa's Year; New State Looming:* T. NISHINO. *Striking Economic Growth Reviewed in White Paper:* H. KANAMORI.

Journal of Economics and Business Administration

VOL. III, NO. 2, DECEMBER 1960. *General Theory of Equilibrium & Rule of Walras:* O. KAIHO. *A Comparative Study of Collective Bargaining:* H. TAK. *Diminution Law of Profit Rate:* I. CHOI. *A Feature Disposition of Blast Furnaces in Japan:* I. KIM. *Planning a Coal Gas Plant in Korea:* K. KIM. *A Study of Personnel Management in Korean Manufacturing Industries:* W. KIM.

The Economic Review (Japanese text)

VOL. 12, NO. 1, JANUARY 1961. *For Appreciation of Political Arithmetic:* S. MATSUKAWA. *Economic Growth and Agriculture:* M. INAGE. *Some Problems on the Approximation of Two Forms of Socialist Property:* N. MIYANABE. *Convariance Analysis of Family Expenditure:* T. MIZOGUCHI. *An Estimate of Food Expenditure in Japan, 1909–40:* M. SHINOHARA. *Behaviour of Banks and the Supply of Money:* S. FUJINO.

Kyoto University Economic Review

VOL. XXX, NO. 2, OCTOBER 1960. *Business Pioneers of Modern Japan:* Y. HORIE. *On Japan's Liberalization of Trade and Exchange:* K. MATSUI. *French Revolution and the Progress of Capitalism:* K. KAWANO.

Problems of Economics

VOL. III, NO. 9, JANUARY 1961. *The New Government Purchase Prices and the Development of Collective Farm Production:* D. KOROVIAKOVSKII. *Price Fixing for Some Species of Farm Products:* M. A. ALEKSEEV. *Differential Land Rent and Problems of Price Formation in Collective Farm Production:* G. KHUDOKORMOV. *Value as the Basis of Price Under the Conditions of a Socialist Economy:* I. KRONROD. *Revaluation of Fixed Capital in the Soviet Economy:* L. VOLODARSKII. *Major Changes in the Structure of Modern Industry:* I. IOFFE. *Three Years of Work Under New Conditions—An Economic Survey:* A. VEDISHCHEV.

VOL. III, NO. 10, FEBRUARY 1961. *Prospects of Competition Between the U.S.S.R. and the U.S.A. in the Field of Machine-building:* G. SMIRNOV and N. IASNOVSKII. *Sector of Economic Competition, Economic Research Institute of the U.S.S.R. State Economic Council: Different Systems—Different Results. New Features in Organising the Material Stimulation of Technical Progress:* V. MARKOV. *Greater Material Incentives and Technological Progress:* G. KOSIACHENKO. *Work Quotas and Wages Under Conditions of Modern Technology:* D. MEERZON. *Fruitful Cooperation Within the Council for Economic Mutual Assistance:* S. PLAKSIN. *Soviet–American Trade Relations from 1923 to 1933:* I. RABINOVICH.

VOL. III, NO. 11, MARCH 1961. *Central Statistical Administration under the U.S.S.R. Council of Ministers: Distribution of U.S.S.R. Population by Social Groups, Branches of the Economy and Occupations, and Educational Level of Personnel in Manual and Mental Labor. The Seven-year Plan and Manpower:* V. MOSKALENKO. *Some Questions Concerning the Methodology of Long-range Planning to Raise the Living Standards of the People:* P. KRYLOV. *Methods of Determining the Economic Effectiveness of Mechanization and Automation:* A. EMEL'IANOV and V. KRASOVSKII. *Concerning the Effectiveness Indicator of Capital Investments:* I. MALYSHEV. *The Soundest Currency in the World:* V. GARBUZOV. *The Functions of the Financial System Under Socialism:* D. ALLAKHVERDIAN. *Joan Robinson's* The Accumulation of Capital: I. OSADCHAIA.

Voprosy Ekonomiki (Russian text)

No. 3, 1961. *The Development of Socialist Planning (on the 40th Anniversary of the Creation of the U.S.S.R. Gosplan):* G. SOROKIN. *Problems of Equalising the Levels of Economic Development of the Countries of the World Socialist System:* V. ZHAMIN. *Socialist Accumulation on Collective Farms:* I. TREGUBOV. *New Forms of Production Relationships among Agricultural Enterprises:* G. KRICHEVSKY and YU. TOLYPIN. *On the Reduction of Labour:* A. KATSENELINBOIGEN. *A Major National Economic Problem:* S. MIKHAILOV. *A Critique of the Reformist Theory of the "Self-liquidation" of Imperialism:* E. BREGEL. *Value or the Production Price in a Socialist Economy?:* A. PRODET. *On Indicators of Industrial Production Cost:* B. GUBIN. *Differential Rent and the Problem of Price for Collective Farm Production:* V. BOEV. *The Widest Masses of Rural Toilers Should Have Some Knowledge of Economics:* A. KOSTAKOV. *Questions of Rationalising Inter-regional Production Relationships:* M. MINAKOV. *The Fixing of Depreciation Charges under Socialism:* D. STEPANOV. *On Two Incorrect Concepts of Amortisation:* R. OTSASON.

The Calculation of Net Income in Collective Farms: K. KHUDGARYAN. *The Utilisation of Labour Resources in Agriculture:* A. BOBROVNITSKY. *On Cost Accounting in Construction:* V. BORTNIKOV. *Experience of Co-ordinating Scientific Research:* D. MOSKVIN. *In the Institute of Economics of the Kazakh Academy of Sciences:* L. RAKHUB. *Problems of the Reduction of Production Costs:* D. BARANOV and A. SOKOLOVSKY. *The Use of Mathematical Methods in Economic Research:* YU. CHERNYAK. *A Discussion of Statistical Abstracts:* N. GRACHEV. *Soviet Economists in England:* V. KONDRATEV.

No. 4, 1961. *The Beginning of a New Era. Leninist Ideas on the Development of Communist Labour:* YU. FRANTSEV. *The Creation of the Material Technical Base of Communism and Ways to Raise the Efficiency of Capital Investment:* T. KHACHATUROV. *On the Further Development of the Collective-farm Form of Property:* I. VISHNEVETSKY. *Current Problems in the Development of Irrigation:* K. SHUBLADZE et. al. *Neo-liberal Trends in Contemporary Bourgeois Economics:* V. KOTOV. *The Incompatibility of the Category of Average Profits with a Socialist Economy:* A. KATS. *Problems of Distribution and Price Formation:* SH. TURETSKY. *Evaluating the Time Factor in Building:* V. CHERNYAVSKY. *Differential Rent and Questions of the Economic Valuation of Land:* I. BUZDALOV. *The Scientific–Methodological Councils for Applied Economics:* N. BORISOV. *Successes of the Economic Development of the World Socialist System:* N. VOLKOV. *Purchase Prices and Their Significance in Raising the Quality of Farm Produce:* N. AGADZHANOV. *On the Use of Manpower in Agriculture:* L. ZLOMANOV and A. YAKHNICH. *On the Economic Role of the State in Contemporary France:* N. IVANOV. *Problems of Lowering Industrial Costs.*

Planovoe Khozyaistvo (Russian text)

No. 3, 1961. *The Ratio of the Rate of Growth of Global Social Product and of National Income:* B. PLYSHEVSKY. *The Plan for New Technique of the Russian Federation for 1961:* P. ABROSKIN. *The Conditions Necessary for the Introduction of Cost Accounting on Collective Farms:* S. IGNATOV. *Mathematics and Electronics in the Service of Planning:* V. NEMCHINOV. *Improve the Methods of Elaborating the Summary Balance of Equipment:* YU. KOLDOMASOV. *Problems of Evaluating Economic Efficiency and Profitability:* V. KRASOVSKY. *On the Use of Certain Technical Economic Indicators for Economic Analysis:* V. KONTOROVICH. *Planning Material–Technical Supply in Sovnarkhozy:* N. FASOLYAK. *Specialisation in the Production of Tools and Technical Fittings:* A. ZASUKHIN and G. SAMBORSKY. *The Efficiency of Precast Concrete Production in the Estonian S.S.R.:* K. KASK. *Major Reserves for Reducing the Price of Innovation:* G. SAFRAI.

No. 4, 1961. *The Great Living Force of the Leninist Principles of Planning. The Use of Mathematical Models and Electonic Computers in Economic Planning Calculations of Household Wages, Incomes and Consumption:* A. AGANBEGAN and N. RIMASHEVSKAYA. *Improve the Planning of Repairs to Capital Assets:* O. ZAGORODNYUK. *Fully Use the Husbandry Reserves of the Lower Volga Region:* V. DIMITRIEV. *The Possibilities of Developing Stock-breeding in the Semi-desert and Desert Zones of Kazakhstan:* V. CHERVINSKY. *In the Struggle for the Pre-term Fulfilment of the Seven-year Plan:* I. DYADYK. *The Plan for Organisational and Technological Measures:* YU. GAIDUKOV. *Planning the Volume of Output by Shop and Production Unit:* A. KOROLKOV. *The National Economic Efficiency of New Technique in Coke-making:* L. SEMENOV. *The Efficiency of Full Automation in Oil Extraction:* R. ISAKOVICH and E. MAKHMUDBEKOV. *The Present State of the Capitalist Economies and the Characteristics of the Post-war Development of Capitalist Accumulation:* A. MANUKYAN. *Change the Planning Arrangements for Supplying Equipment to Thermal Power Stations:* V. TKACHEV. *Improve Material and Technical Supply to Building:* M. SIDOROV. *A Scientific Meeting on Problems of Improving Economic Planning.*

Finansy S.S.S.R. (Russian text)

No. 1, 1961. *The Financial System Faced by New Tasks:* V. GARBUZOV. *Finance in Conditions of the Expanding Construction of Communism:* D. ALLAKHVERDYAN. *On Budget Operations in the Localities:* L. NIKITINA. *Some Problems of the Use of the State Budget of the U.S.S.R.:* E. DEDKOV. *New Currency, a New Price Scale. On the Principles for Defining Profitability in Industrial Branches:* N. GALPERIN and B. ZHUKOV. *Once More on Planning Deductions from Profits:* M. LITVIN. *Scope for Rendering Financial Assistance:* B. MITELMAN. *The Development of Finance in the Democratic Repubic of Viet-Nam:* CHIN VAN BIN. *A Meeting on Planning and Incentives for the Reduction of Production Costs.*

No. 2, 1961. *A Fighting Programme of Action. The Analysis of Reports and Balance Sheets—an Important Weapon for Mobilising Reserves and for the Growth of Accumulation:* N. MALAKHOV and S. RYUMIN. *Improve Economic Work:* V. SAMOILOV and V. PAEVSKY. *The Finance*

Agencies and Local Industry: V. ARPENTEV. *Better Utilise Funds Allotted to Road Works:* A. BIRKIN. *Some Problems of Profitability:* R. VINIKUR. *The Daily Life of a Finance Section in a Factory:* P. MAISKY. *How to Draw Up a Payments Time-table:* YU. PETROV.

No. 3, 1961. *Worthily Meet the XXII Congress of the Communist Party of the Soviet Union. For a High Level of Fulfilment of the 1961 Budget of the R.S.F.S.R.:* I. FADEEV. *On Training Staff for the Financial System:* G. BALAMUTOV. *Control by the Ruble and Cost Accounting in State Farms:* V. SEMENOV. *Some Problems in the Analysis of the Financial Operations of Collective Farms:* G. KUTUZOV. *More Widely Mechanise Accounting and Computing Work in Finance Agencies:* E. SAKHAROV. *The Fundamental Superiority of Socialism in the Utilisation of Fixed Productive Assets:* K. VALTUKH and I. DOLOTENKOVA. *Economic Work—an Important Factor in the Utilisation of Reserves in Building:* A. FERBERG. *Against Excesses and Extravagance:* D. VOLODIN. *Cost Accounting and the Planning of Industrial Costs:* K. KAZANKOVA and S. KHEFETS. *Once Again on the Finance of Public Health:* L. KRYMKO.

Vestnik Statistiki (Russian text)

No. 1, 1961. *Towards New Victories in the Building of Communism. Some Problems of Applying Indicators of Outlays per Ruble of Goods Production:* D. VAINSHENKER. *A Comparison of the Levels of Agricultural Production in the U.S.S.R. and the U.S.A.:* A. PAVLOV and V. SOBAKINSKIKH. *A Schematic Model of Expanded Reproduction:* D. OPARIN. *Irregular Demands for Reports:* G. GROSHENKOV. *On the Harmonic Mean:* P. PETROV. *Where Attention Should be Paid in Verifying the Annual Reports of a Collective Farm:* A. IVANOVA. *On Working Up the Data from the Census of Uninstalled Equipment:* P. ZELTSER. *In the Statistical Section of the Moscow Scientists' Centre of the U.S.S.R. Academy of Sciences:* YU. K. *A Further Improvement and Diminution of Current Statistical Reporting:* T. VOLKOV and K. DAVYDOV. *On a Sample Survey of Clubs and Libraries of Collective Farms:* M. POLUBOYARINOV. *A Meeting on Industrial Statistics in the R.S.F.S.R. Statistical Administration:* L. GURAKOVA and T. KAPOTINA. *Courses for Raising Qualifications:* L. DENISOVA and G. ALTOVSKAYA.

No. 2, 1961. *In All Ways Raise the Level of Statistical Work. The Productivity of Farm Labour in the U.S.S.R. and the U.S.A.:* B. BRAGINSKY and D. DUMNOV. *The Study of the Economic Efficiency of the Mechanisation and Automation of Production:* A. KOKOTUSHKIN, V. SURINA and M. TKACHEVA. *The Progress of the Czechoslovak Economy and the Tasks of Its Statistical Agencies:* F. GERBST. *On the Analysis of Industrial Costs:* M. ILEVSKY. *How the Index of State Retail Prices is Computed:* M. SADEKOV and V. TOLKUSHKIN. *How We Verify the Authenticity of Reported Data:* A. BATURIN. *Our Experience in Reporting Livestock Procurement:* N. KULIKOV. *Results of the Use of Telegraphic Reporting by Machine Computing Stations of the R.S.F.S.R. Statistical Administration:* P. ZOTOV. *On the Problem of Statistical Methods for Separating the Effects of Several Factors:* Z. SIDLIK. *An Inter-University Conference on the Teaching of Statistics:* N. KOBOROV and A. SHIFMAN. *A Seminar on Problems of Studying Levels of Living:* E. AGABABYAN and E. CHOMARYAN. *New Standardised Primary Reporting on Materials:* V. KUKLIN. *A Meeting on Statistics of Material–Technical Supply:* L. M. *A Seminar Meeting on Trade Statistics:* N. T. and D. SH.

No. 3, 1961. *Occupational Distribution in the 1959 Census:* V. ROZDYALOVSKAYA. *On Elaborating Summary Balance Sheets of Financial Assets and Outlays of Union Republics:* A. LYANDO. *Checking the Output of Every Good:* N. SAVOSTIKOVA. *The Increase in the Welfare of the Toilers of the Rumanian People's Republic:* M. MANESCU and C. IONESCU. *On the Question of Statistical Indicators of New Technique Introduced into Industry:* A. BOLTYANSKY. *Computing the Cost of Production on Collective Farms in 1960:* A. SILIN. *Verifying the Authenticity of Statistical Reports on Deliveries of Industrial Products:* P. KONNOV. *The Statistical Organs of the United Nations:* L. LUKIN. *The Struggle for the Authenticity of Reports—the Main Part of Our Work:* N. UKHANOV. *Assessing Zonal Variations:* V. CHERNOIVANOV. *In the Statistical Section of the Moscow Scientists' Centre:* F. L. *The New System of Incentives for Director, Engineer and Technician Staffs of Machine-computing Stations and Plants for Mechanised Accounting of the Central Statistical Administration.*

No. 4, 1961. *A Great Event in the History of Mankind. New Documents on Lenin's Help to the Statistical Agencies:* A. GAK. *Urgent Problems in the Statistics of Wholesale Prices:* A. DERYABIN. *Results of the Application of Grouping to the Economic Analysis of Building Output:* I. GALTSEV and A. USTINOV. *On Indicators of the Effect of Changes in Labour Productivity on Output:* N. POPOVA. *The First Hungarian Input–Output Table for 1957:* Z. KENESSEY. *The Organisation of Sample Surveys of the Composition, Occupation and Incomes of the Members of the Families of Gainfully-occupied Persons in Bulgaria:* D. VALEVSKY. *A Critique of Methods Used by British Bourgeois Statisticians of Indicators of the Level of Living:* K. ILINA et. al. *On*

Establishing the Labour Resources of Collective Farms: I. PASKHAVER. *Money Incomes of the Population, Retail Prices and the Cost of Living in the German Democratic Republic and Western Germany:* S. BENDRAT. *How the Valuation of Fixed Assets on Collective Farms Is to Be Carried Out:* A. KONCHEV. *How the Coefficients of Infantile Mortality Are Computed:* E. RODINA. *Verifying the Authenticity of Reported Data in Enterprises of Tashkent and Tashkent Oblast:* E. GOLEMBO. *Improve the Arrangements for Enquiries into Collective-Farmers' Budgets in the Georgian S.S.R.:* M. MOROZOV. *Raise the Qualifications of Reporting Staff on Collective and State Farms:* I. PAVLIN. *On Putting Order into the Use of Symbols in Statistics:* M. BARUN. *A Meeting on Statistics of Prices and Price Formation:* P. O. *In the Board of the Central Statistical Administration and the Scientific Methodological Council:* A. L. *A Meeting of the Republican Unit of the Turkmen Statistical Administration:* V. TIMOFEEV.

Ekonomicheskie Nauki (Russian text)

No. 1, 1961. *The Leninist Principle of Peaceful Co-existence of Two World Systems:* V. BUDARIN. *Some Problems of the Relations between Socialist Industrialisation and the Socialist Co-operation of Peasants:* G. KHARAKHASHYAN. *The Relationship between the Development of Industry and Agriculture in the U.S.S.R. and the Improvement of the Collective-farm Form of Property:* V. KIRICHENKO. *Some Problems of the Action of the Law of Value in Collective-farm Production:* E. SAGAIDAK. *The Use of Labour Resources in Collective Farms:* A. GOLTSOV. *An Inter-Industry Balance of the Economy of a Region:* YU. CHERNYAK. *On the Law of High Monopoly Profits:* M. SOROKOPUD. *The Fantasy of the Evolution of Socialism towards Capitalism—a New Variant of the Apologists of Capitalism:* L. SPERANSKAYA. *The Principles of the Origin of Econometrics:* V. SHLYAPENTOKH. *On the Scientific Definition of the Productive Resources of Society:* V. CHELNOKOV. *Technical Progress and the Rate of Growth of Labour Productivity in the Footwear Industry:* V. PANKRATEV. *On Changes in Labour Productivity in Water Transport:* I. VERNSHTEIN. *Fulfilment of the Accumulation Plan and Bank Control:* V. SHEVELEV. *A Meeting of Heads of Social Science Faculties of the Russian Federation. The Economic Competition of Two World Systems (an Inter-University Conference):* O. RUDAKOVA et. al. *The Development of the Co-operative-Collective Form of Property to the Level of General Social Ownership in the Period of Expanding Construction of Communism (a Conference of the Economics Faculty of Moscow University):* I. SUSLOV and A. EMELYANOV.

Ekonomista (Polish text, English and Russian summaries)

No. 1, 1961. *The Operation of the Law of Value under Socialism:* B. MINC. *Direct Economic Calculus:* A. WAKAR and J. ZIELIŃSKI. *Some Remarks on the Rate of Growth of Social Product:* P. SULMICKI. *Foreign Trade and Economic Growth:* J. SOLDACZUK. *From the Typology of Ordo-liberalism:* A. HABER. *The Influence of Recent Changes in the Business Situation of Industrial Countries on the Economic Position of Underdeveloped Countries:* Z. DOBRSKA. *The Size of the Enterprise and the Efficiency of Labour in Building:* Z. BOGUSŁAWSKI and D. MIKULECKA. *An Essay in the Application of Linear Programming to the Determination of Alcohol Production:* S. ANDRZEJSZYN and J. KUŻDA. *A Quantitative Analysis of the Role of the State in an Underdeveloped Economy:* I. SACHS. *Critical Remarks on the Index of Investment Efficiency of M. Kalecki and M. Rakowski:* W. FABIERKIEWICZ.

Gospodarka Planowa (Polish text)

No. 3, 1961. *On the Eve of the Elections—Our Achievements and Prospects for the Next Five Years. Fifteen Years of Planned Efforts to Develop the Polish Economy—Facts and Figures. Polish Industry in the World Industrial Pattern:* W. BUCH. *Engineering on the Threshold of a New Five-year Period:* R. WILCZEWSKI. *Polish Exports in the Five-year Plan:* W. TRAMPCZYŃSKI. *Consumption in the Five-year Plan:* M. LESZ. *The Development of Agriculture in 1961–65:* S. CIEŚLAK. *The Five-year Plan for Vocational Training:* M. GODLEWSKI. *The Conditions for an Expansion of East–West Trade:* W. TRZECIAKOWSKI. *The Growth and Efficiency of Foreign Trade:* S. POLACZEK. *Current Problems in Promoting and Planning Production for Export in State-owned Local Industries:* B. KLOSOWSKI. *New Regulations for Drafting the Technical–Economic Plans of Enterprises:* E. SZYMAŃSKI. *For a Proper Understanding of Cost Planning:* B. DAWID.

Politická Ekonomie (Czech text)

No. 3, 1961. *On Questions of the Relationship of Capital to the Growth of Labour Productivity:* L. ŘIHA. *The Determination and Planning of the Volume of Social Production Costs under*

Socialism: M. KOCMAN. *A Global Criterion and an Index of Investment Efficiency:* W. KOMÁREK. *Problems of the Relationship between Labour Productivity and Wages:* V. GERLOCH and R. KITTRICH. *The Penetration of German Imperialism into South-East Europe before the Second World War:* R. OLŠOVSKÝ. *The Utilisation of Input–Output Relations to Investigate the Suitability of the Branch Structure of Industry:* GY. CUKOR and Z. ROMÁN. *The UNESCO International Seminar at Prague:* J. SERGHIYOVÁ.

Plánované Hospodářství (*Czech text*)

No. 1, 1961. *The First Year of the Third Five-year Plan. Problems of the Economic Efficiency of Technical Development:* Z. PŮČEK. *Factory Transportation in the Heavy Engineering Industry:* L. HLÁVKA. *Increasing the Number of Shifts and Planning the Consumption of Electricity:* O. TADRA. *Transport Tasks Arising from Increasing the Number of Shifts:* F. MASLO and A. SVAČINA. *Transferring Food Enterprises to the Regional Authorities:* M. PAVEL and V. MATYÁŠEK. *The New Classification of Fixed Assets:* E. ČERVENÝ and J. KAZIMOUR. *The Methodology of Technological Index Numbers and Their Composition:* V. DĚDEK. *Experience with Norms for Personal Incentive Schemes:* J. RABA. *The Intensification of Material Incentives for Technical Improvements:* V. FILIP. *Spare-part Programming by the Use of Punched Cards:* J. TOMEK.

No. 2, 1961. *The Tasks of the Czechoslovak Chemicals Industry:* B. TOMEK and J. HOLČAPEK. *Problems of the Transformation of Our Villages:* M. SLUKA. *Questions of Water Supply:* A. NOVOSÁD. *Building Problems in Capital Investment:* J. BEDRUNKA. *Population and the Employment Rate in the Long-term Plans of Regional Authorities:* J. KAZIMOUR. *The Evaluation of the Efficiency of Pilot Plants:* L. ŘÍHA and M. ELIÁŠ. *Alternative Calculations in the Power Supply Balance:* V. HAVLIN and V. STRNAD. *The Economic Efficiency of Investment:* O. VITHA. *The Task of Technical Development in Raising Production:* Z. TRČKA. *Problems of Industrial Expansion in Individual Areas:* M. ZBOŇIL. *Questions of the Raising of Milk Yields:* J. CHMELA. *On Supply Arrangements in Ferrous Metallurgy:* O. KROFTA.

No. 3, 1961. *Promoting the Socialist Labour-brigade Movement:* V. PAŠEK. *The Fifth National Congress of Co-operative Farmers:* B. PROUZA. *The Reconstruction and Modernisation of Fixed Assets:* J. KOZÁK. *The Control of Local Authority Enterprises:* R. RYCHTAŘIK. *The Determination of Optimal Capacity in Chemical Plants:* A. RUBNIÁK. *Research into the Utilisation of Fixed Assets over Time:* V. AULICKÝ and B. URBÁNEK. *Relations between Suppliers and Customers:* V. KASÍK. *Results of Studies on the Use of Fixed Assets in the Consumers' Good Industry:* Z. MIKEŠ and O. ŠRUBAŘ. *Asset Use in the Libčice Screw and Plug Plant:* K. HOPP. *Experiences with Housebuilding in the North Bohemian Region:* J. ZAHOŘÍK.

No. 4, 1961. *New Trends in World Economic Development. The Use of Ferrous Shavings in the Second Five-year Plan:* O. MESÁROŠ. *Pricing in Local Authority Enterprises:* F. NEVAŘIL. *The Need for Better Exploitation of Mineral Wealth:* J. MACEK. *The Concentration of Farm Output:* J. KUNC. *Earnings Differentials among Social Groups:* S. PEGA. *The Application of the New Planning Methods in Local Authority Enterprises:* K. ČIPEK and Z. URBÁNEK. *Certain Questions Concerning the Regulation of Relationships in Construction:* J. SCHORCHT. *Methods and Formation of Technical and Economic Indicators of Capital Construction:* J. KOZÁK and J. KVAPILIK. *The Comprehensive Development of the East Slovak Region During the Third Five-year Plan:* L. TURČAN. *Checking the Implementation of the Five-year Plan:* J. FORMÁNEK.

No. 5, 1961. *Forty Triumphant Years. The Broad Prospects for Developing Public Services:* V. PAPEŽ. *Problems of Location in the Long-term Plan:* O. ŽUREK. *The Application of Regional Specialisation in Agriculture:* J. NOVÁK. *Defining the Responsibility of Producing Units for Supply:* L. MATĚJKA. *Relationships in Capital Construction:* J. STRAKOŠ. *Putting a Plant into Operation:* J. HRUŠKA. *Shortened Working Time in the Chemical Industry:* M. MEJDR. *Experiences of National Committees in Drafting Long-term Plans:* J. ZAHÁLKA. *The Problem of Reconstruction Investments:* P. LANG. *A Seminar on Shift Working.*

Ikonomicheska Misl (*Bulgarian text, French and Russian summaries*)

No. 10, 1960. *The Advantages of the Socialist World Economic System Over the Capitalist System:* S. SHARENKOV. *Some Problems of Railway Electrification in Our Country:* M. GEORGIEV. *On the Economic Valuation of Land:* V. TODOROV. *The Political and Social Ideas of Gracchus Babeuf:* M. MIKHAILOV. *Anti-Trust Legislation in Bourgeois Bulgaria in the Light of Recent Data:* L. BEROV. *An International Conference on New Trends in Contemporary Bourgeois Economics:* DJ. NATAN and K. GRIGOROV.

Planovo Stopanstvo i Statistika (Bulgarian text)

No. 1, 1961. *The Great Vital Force of Marxism–Leninism. The 1961 Plan Law. Basic Directives for Economic Development in 1961:* G. Georgiev. *On Some Problems of Stockbreeding in Market-gardening Zones:* A. Petkov. *The Growth of Output and Use of Packing Paper and Cardboard:* N. Relovski. *For the Improvement of Planning in Connection with Changes in Levels of Living:* Z. Staikov. *On Calculating Production and Labour in Communal Services:* S. Marinov. *An International Scientific Conference on Long-term Planning:* R. Janakieff. *An International Meeting on Standardising Methods for Family Budget Enquiries among Workers, Employees and Co-operative Farmers:* P. Petkov.

No. 2, 1961. *The World Socialist System—a Decisive Factor for the Evolution of Human Society:* S. Sharenkov. *Some Problems of Our Fisheries:* N. Georgiev. *On the Comparison of Labour Productivity between Enterprises or Regions:* A. Avramov. *On the Decomposition of the Effect of Changes in Two Co-acting Factors:* P. Petrov. *Operational Planning in the Production of Electric Computers:* Ya. Stefanov.

Finansi i Kredit (Bulgarian text)

No. 1, 1961. *The State Budget for the People's Republic of Bulgaria for 1961:* K. Lazarov. *The Tass Communiqué on Soviet–Bulgarian Economic Relations. Basic Tasks for the Bulgarian Investment Bank in 1961:* K. Danov. *How to Improve in the Future the Budget System of the People's Republic of Bulgaria:* G. Bokov. *On the Necessity of Money in the Period of Expanding Construction of Communism:* Z. Atlas and A. Yudkin. *The Development of Loans for Minor Mechanisation and Consumer-goods:* P. Slavchev. *The Consequences for Greek Finances of Armaments Expenditure:* S. Pavlidis.

No. 2, 1961. *The Tasks of the Bulgarian National Bank for 1961:* K. Nestorov. *For the Fulfilment and Overfulfilment of the Plan for State Revenue in the Current Year:* Ya. Yanev. *On Some Financial Potential among Regional Councils:* P. Velkov. *On the Question of Providing Credits to Enterprises for Material–Technical Supply:* R. Minev. *The Principle of Automatic Payments in Respect of the Insured Assets of Co-operative Farms—a New Stage in the Development of Our State Insurance:* D. Popvasilev. *The Question of the Decline in the Value of the Dollar:* A. Stoichev.

Ekonomski Pregled (Serbo-Croat text, some English summaries)

No. 1, 1961. *A Contribution to the Analysis of Monetary Trends:* I. Perišin. *Problems Connected with the Choice of the Investment Rate:* B. Horvat. *Some Problems of the Analysis of National Income Dynamics:* Z. Rijavec. *Investment Funds:* F. Vasić. *The Yugoslav Automobile Market and Prospects for the Development Particularly of a Domestic Passenger Car Industry:* M. V. *The Economic Situation and the Foreign Trade of Thailand in 1958/59:* M. V.

Közgazdasági Szemle (Hungarian text, English and Russian summaries)

No. 3, 1961. *The Evolution of the Standard of Living during the Period of the Three-year Plan:* I. Dobos. *The Use of Mathematical Methods in Economic Research and Planning:* V. Nemchinov. *Commodity Production and the Labour Force under Socialism:* L. Halasi. *For a Further Development of Economic Efficiency Calculations:* T. Liska. *Methods of Analysing and Planning Inter-industry Relations as Components of the Economic Process:* Gy. Simon and Gy. Kondor. *Performance Norms in Co-operative Farms:* L. Komló. *The Problems of the Rapid Growth of Agriculture in the Soviet Union:* B. Csizmadia. *Some Problems of the Supply of Potatoes:* I. Kádár. *Problems of Post-graduate Study in Economics:* F. Vági. *A Discussion on the Use of Input–Output Balances in Planning:* F. Nyitrai.

Statisztikai Szemle (Hungarian text, quarterly English and Russian summaries)

January 1961. *The Role of Averages in Statistical Theory:* P. Kövés. *On the Error Limits of Input–Output Computations:* A. Bródy. *Statistical Problems of the Division of Labour in Transport:* Gy. Szilágyi. *The 1960 Census of Private Craftsmen:* B. László. *Results of the 1959 Survey of Cultural Statistics:* J. Pártos.

February 1961. *Some Problems of the Sampling Method in Calculations of Foreign-trade Price Indices:* A. Marton. *Examination of the Efficiency of Innovation in Engineering:* S. Nagy. *An Application of the Sampling Method to Farm Surveys:* A. Hellei. *Some Questions of Statistical Work in the United Kingdom:* O. Lukács and Z. Kenessey. *On the Results of Our Tourist Traffic:* A. Kolacsek and B. Markos. *Dwelling Construction in 1949–59:* M. Fóriss. *A Comment on the Gross or Net Character of the Value Indicators of Agricultural Output:* J. Drótos.

Problems Economice (*Rumanian text, some English, French and Russian summaries*)

No. 12, 1960. *The Contemporary Era—The Epoch of the Triumph of Socialism and Communism on the World Scale. The Importance of the Economic Aid of the U.S.S.R. and of Collaboration with Socialist Countries for the Building of Socialism in the Rumanian People's Republic:* I. MĂRGINEANU. *Problems of Productive Labour in Socialism:* C. IACOBOVICI and C. MOINEAGU. *The Reduction of Costs in Road Improvement:* D. SIMULESCU. *The Reduction of Transport Costs:* P. LUPȘE. *The Increase in Grain Production—The Basis of the Development of Agriculture and of the Improvement of Consumption:* S. STOIAN. *Against Bourgeois and Revisionist Theories on Value and Prices on Socialism:* I. RACHMUTH. *A Criticism of the Bourgeois Theory of Economic Growth in The Harrod Model:* N. IVANCIU. *On the Indicator of Outlays per Thousand Lei of Commodity Output in Enterprise Wholesale Prices:* GH. ȘICLOVAN. *A Scientific Session at the Cuza University, Iași:* N. DAVIDEANU. *An International Scientific Conference on New Trends in Contemporary Bourgeois Economics.*

NEW BOOKS

British

ALLEN (V. L.). Trade Unions and the Government. London: Longmans, 1960. 9½″. Pp. xii + 326. 35*s*.

[Into eleven short chapters Mr. Allen has tried to compress an historical and critical account of such topics as "Trade Unions as Pressure Groups"; "The Significance of Strikes to the Government"; "Industrial Action for Political Ends"; and "Trade Unions with Labour in Power." There are some shrewd comments here and there, as, for instance, on trade unionists as members of committees and commissions—though the help rendered by the skilled staff of T.U.C. headquarters is not mentioned. But the general quality of the work is best indicated by comments such as the following: "The precarious state of Britain's economy was apparent late in 1946. The American loan was being consumed rapidly by rising prices"; on the unofficial dock strikes of 1948 and 1949: "Troops who moved food supplies were employed in the interests of the community, but in fact they were blacklegs who reduced the effectiveness of the strikes . . . whatever the motives of the government, troops invariably appeared as strike-breakers and as protectors of the interests of employers."]

BAUMOL (W. J.). Economic Theory and Operations Analysis. An introduction to the tools, results, and reasoning of economic theory. London: Prentice-Hall International (34–36 Beech Street, London E.C.1.), 1961. 9″. Pp. x + 438. 42*s*.

[To be reviewed.]

BROWN (W.). Exploration in Management. London: Heinemann, 1960. 9″. Pp. xxii + 326. 30*s*.

[Wilfred Brown is the Chairman and Managing Director of the Glacier Metal Company and is well known for his keen interest in problems of organisation within industrial firms. In 1948 his company began to co-operate with the Tavistock Institute of Human Relations in a research project into industrial social issues. The results of this piece of research were set out in Elliott Jacques's "The Changing Culture of a Factory." Since 1950 Dr. Jacques has carried out further research within the Glacier Metal Company, and in this book Mr. Brown sets out the "concepts, principles and ideas" that have emerged during this period of research. He also describes the representative system, the legislative system and the appeals procedure that he has been instrumental in introducing into the Glacier Metal Company. In Mr. Brown's view there are strong grounds for the belief that the general description of his company's organisation contained in this book is valid for industry generally. All in all, this is a pioneer attempt, on the part of one of the leading intellectuals among British businessmen, to analyse systematically the organisational problems of management and to work towards a body of generalisations in this field.]

CLEGG (H. A.), KILLICK (A. J.) and ADAMS (R.). Trade Union Officers. A Study of Full-time Officers, Branch Secretaries and Shop Stewards. Oxford: Basil Blackwell, 1961. 9″. Pp. xiii + 273. 32*s*. 6*d*.

[To be reviewed.]

CORDEN (W. M.). A Tax on Advertising? London: The Fabian Society, 1961. 8½". Pp. 40. 4*s*.

[This provides a convenient survey of the facts and controversies about the economics of advertising. It does not contain much that is new, but the arguments are presented clearly, compactly and fairly, and the references given provide a useful guide to the literature, especially on the empirical side. With regard to policy, the author recommends the imposition of a tax very similar to that actually imposed on television advertising by the 1961 budget (Mr. Corden's pamphlet was published in March). He suggests that this should be accompanied by the introduction of government sponsorship of consumer research and information services, so that "some part of the £400 million spent on advertising would be used to supply [the consumer] with information which was independent and unbiased instead of persuasive and partial." This way of putting the argument is open to the criticism that it assumes too readily that taxation will be effective in reducing the real volume of expenditure on advertising.]

DANTWALA (M. L.). India's Food Problem. London: Asia Publishing House for the Indian Council of World Affairs, 1961. 8½". Pp. 40.

[This pamphlet by the head of Bombay University's Economics Department gives a useful brief survey of some of the facts and problems of Indian agriculture. Statistical information is provided on production and prices under the plans, and the well-known discrepancies in official figures are mentioned and explained. The author does not see the need for drastic institutional changes in, for example, the size of holding, but stresses the case for technological improvement and more efficient organisation at the State, regional and village levels. He is not in favour of slowing-down the tempo of industrial development, but does not make clear how the resources for both this sector and agricultural improvement are to be found.]

DAS (N.). Unemployment, Full Employment and India. London: Asia Publishing House, 1960. 9". Pp. 94. 20*s*.

[This third edition of the short book first published in 1946 again stresses the problem of finding work for India's growing labour force. The author is critical of his Government's failure to provide "positive and realistic employment policy," attacks the planners for giving undue emphasis to equalisation of wealth and income and a socialistic pattern of society and urges a more drastic population policy. His criticisms are interesting and provocative, but his own policy recommendations are not fully enough developed.]

DICKINSON (R. E.). Some Problems of Human Geography. Leeds: Leeds University Press, 1960. 8¼". Pp. 36.

[This is an inaugural lecture delivered by the Professor of Geography at Leeds. It is divided into three main parts, the first dealing with questions of scope and method in human geography, and the second and third with two particular topics chosen as examples: commuting patterns in Western Germany and agricultural overpopulation in Southern Italy. In dealing with the latter, Professor Dickinson shows with the aid of maps the wide differences of terrain and economic structure that exist within the region, and he argues that policy measures must take proper account of these.]

DUNFORD (W. J.). Uncertainty and the Farmer. Devon: University of Bristol (Department of Agricultural Economics, 1 Courtenay Park, Newton Abbot, Devon), 1961. 10½". Pp. 40. 3*s*. 6*d*.

[A small sample of farmers in Devon were asked a series of hypothetical questions designed to test their degree of risk-aversion. The results were compared with the farmers' individual economic circumstances to see if any systematic relationships emerged. Only two of the possible relationships tested turned out to be statistically significant: farmers with low incomes had a relatively high degree of risk-aversion, and farmers with high debts had a relatively low one. The inquiry also covered measures taken by farmers to protect themselves against uncertainty, such as diversifying production and insuring against animal diseases. In conclusion, the author argues, first, that two different policies may both be appropriate for the farmers adopting them, if character and circumstances cause them to have different attitudes to uncertainty; and secondly, that any national measures that reduce uncertainty are likely to reduce farm costs. One interesting suggestion in this connection is that a reduction in uncertainty would permit an increase in farm size, since the size of the farm may in many cases be limited chiefly by the farmer's managerial ability and energy, and the burden of managerial decision-making in turn largely depends on the degree of uncertainty affecting the business.]

EDWARDS (R. S.) and TOWNSEND (H.). (Ed.). Studies in Business Organisation. London: Macmillan (New York: St. Martin's Press), 1961. 9". Pp. xxiii + 160. 25*s*.

[In *Business Enterprise* (reviewed in the ECONOMIC JOURNAL, March 1960) Professor Edwards and Mr. Townsend provided, in Appendices, a selection of nine of the papers presented by businessmen

to their London School of Economics Seminar. This new volume consists of a further ten papers, with a short introduction to provide a guide to the main problems which are raised. About one-half of the papers are concerned with the development and organisation of particular firms, and the rest with particular aspects of administration. Although they are all of absorbing interest, among the former one might pick out the papers by Mr. Forte on the development of a catering organisation and by Sir George Dowty on the astonishing growth from scratch of his engineering business. The latter group ranges from the manufacture of bolts, nuts and screws to the administration of Covent Garden Opera House and of Her Majesty's Stationery Office. Although they are presented as a supplement to the larger work, they could well be required reading for students of industrial organisation; for they give an insight into the problems of growth and organisation which is likely to be superior to that derived from even the best of general text-books.]

EISNER (G.). Jamaica, 1830–1930. A study in economic growth. Manchester: The University Press, 1961. 9″. Pp. xxiii + 399. 50*s*.

[To be reviewed.]

HARRISON (M.). Trade Unions and the Labour Party since 1945. London: Allen & Unwin, 1960. 9″. Pp. 360. 32*s*.

[This is a thorough study of the funds raised by British trade unions through the "political levy" and of the ways in which they spend them. The unions contribute 84% of the total annual income of the national Labour Party and an even larger proportion of its central expenditure on general elections. Yet the proportion of total constituency expenditure which comes from the unions is very small, and the numbers and influence of M.P.s "sponsored" by trade unions have declined notably since 1945. The original purposes for which trade unions built up their political funds have largely been achieved; and they now conduct their specific economic and legislative negotiations with the government through the National Joint Advisory Council and the National Production Advisory Council for Industry. The "political" funds of the unions are used more and more to influence general policy. This book is a valuable and accurate study of the mechanism used—clumsily and haphazardly—for this purpose.]

HEATH (J.). Not Enough Competition? (Hobart Paper 11). London: Barrie and Rockcliff for the Institute of Economic Affairs, 1961. 8¼″. Pp. 48. 3*s*. 6*d*.

[This is a survey of the restrictive practices problem. The pamphlet provides a convenient summary of the facts and of recent arguments, together with references to the literature, and it should be useful to students. The author begins by assessing the pros and cons of restrictions on competition, concluding that while some case exists for protecting businesses from extreme insecurity, price agreements are not the best way of doing it. Mr. Heath agrees that in principle too much competition may be harmful, but he thinks that in practice the danger of there not being enough competition is much greater. He then proceeds to describe the Restrictive Trade Practices Act and how it has worked. By way of strengthening present legislation, Mr. Heath suggests the introduction of control over mergers, possibly by requiring all proposals for mergers to be reported to the Monopolies Commission.]

HICKS (U. K.). Development from Below. Local Government and Finance in Developing Countries of the Commonwealth. London: Oxford University Press, 1961. 9″. Pp. xiii + 549. 35*s*.

[To be reviewed.]

JAWETZ (M. B.). The Joint Production Function of Starch Equivalent and Protein Equivalent in Feeding Dairy Cows. Aberystwyth: University College of Wales, Aberystwyth, Department of Agricultural Economics, 1961. 9″. Pp. 121. 10*s*.

[The production function referred to is derived by applying multiple correlation techniques to data from a sample survey. The conclusions reached are used to give guidance on long-term feeding policy and also on the variation needed in a cow's food intake at different stages of lactation.]

KLEIN (L. R.), BALL (R. J.), HAZLEWOOD (A.) and VANDOME (P.). An Econometric Model of the United Kingdom. Oxford: Basil Blackwell, 1961. 9″. Pp. ix + 312. 60*s*.

[To be reviewed.]

LAMFALUSSY (A.). Investment and Growth in Mature Economies. The Case of Belgium. London: Macmillan (New York: St. Martin's Press), 1961. 9″. Pp. xviii + 206. 31*s*. 6*d*.)

[To be reviewed.]

LERNER (S. W.). Breakaway Unions and the Small Trade Union. London: Allen & Unwin, 1961. 8½". Pp. 210. 25*s*.

[To be reviewed.]

MACKAY (R. W. G.). Towards a United States of Europe. An Analysis of Britain's Role in European Union. London: Hutchinson, 1961. 9". Pp. 160. 21*s*.

[To be reviewed.]

MARRINER (S.). Rathbones of Liverpool, 1845–73. Liverpool: Liverpool University Press, 1961. 10". Pp. xii + 246. 30*s*.

[To be reviewed.]

MAYER (A. C.). Caste and Kinship in Central India. A village and its region. London: Routledge & Kegan Paul, 1960. 9". Pp. xvi + 295. 35*s*.

[The importance of sociological factors in economic growth is becoming increasingly recognised by economists. Probably no social factor is more pervasive or more significant in India's economic development than caste. In this study a social anthropologist, already known for a number of sociological studies, puts under his microscope a multi-caste village in Malwa. The result is a fascinating and authoritative account of economic organisation and occupation, religious customs and taboos, and of caste in all its detailed ramifications. Economists who wish to understand the underlying problems of the Indian economy will learn much from regional studies of this sort.]

MEJIA-RICART (M. A.). Crisis of Small States in the Present Economic World. London: Farm Intelligence Limited (42 Parliament St., London, S.W.1.), 1960. 8½". Pp. 98. 12*s*. 6*d*.

[This is a study of the economic and social problems of small underdeveloped states, with particular reference to Central America and the Caribbean. The author comes from the Dominican Republic. The first stage of his argument is that a fundamental economic weakness of the countries he is concerned with is that they are primarily agricultural and that the long-term trend of prices is unfavourable to agriculture. He infers that industrialisation is essential and that planning is the way to achieve it. At the same time, these countries are too small to industrialise successfully on their own, and co-operation between them in the planning programme is therefore necessary. The author supports his views with evidence drawn from a wide range of sources. Much of this evidence is interesting, but for the most part it serves to illustrate the points the author is making rather than to establish a fully documented case for his views.]

NURKSE (R). Patterns of Trade and Development. Wicksell Lectures 1959. Oxford: Basil Blackwell, 1961. 10". Pp. 62. 6*s*.

[This is an English edition of the late Professor Nurkse's already well-known Wicksell lectures. The Swedish edition was noted in the ECONOMIC JOURNAL of March 1960.]

OLIVER (F. R.). The Control of Hire-Purchase. London: Allen & Unwin, 1961. 9". Pp. 218. 25*s*.

[To be reviewed.]

OMAN (C.). The English Silver in the Kremlin, 1557–1663. London: Methuen, 1961. 10". Pp. xviii + 94. 42*s*.

[The author is Keeper of the Department of Metalwork at the Victoria and Albert Museum. He recently spent a period in Moscow studying the English silver in the Kremlin. This book is a history of how the plate found its way there. Most of it was carried by embassies sent to Moscow to safeguard the trade privileges won by the English merchants. Some interesting sidelines on commercial and diplomatic practice in the sixteenth and seventeenth centuries emerge from Mr. Oman's narrative. His book is beautifully illustrated by fifty-four plates.]

PAISH (F. W.). Business Finance. London: Pitman, 1961. 9". Pp. viii + 158. 15*s*.

[This is the second edition of the book originally published in 1953. Apart from a further chapter on the new-issue market and an additional preface (in which Professor Paish points to the rapid and quite unexpected growth of United Kingdom personal saving since the publication of his first edition) the lay-out is virtually unchanged. In Part I, on Principles, the author considers such concepts as risk, limited liability, gearing, liquidity, control and pyramiding. In Part II, on The Provision of Finance, there is a long chapter on internal finance, with lucid exposition of the way in which present accounting conventions operate at times of rising or falling prices: here are now incorporated references (p. 81) to the two official inquiries (the Tucker Committee and the Royal

Commission on the Taxation of Profits and Income) and (p. 84) to Investment Allowances. Then there follow chapters on methods of raising external finance, whether privately or via the new issue market. Finally, there are two short chapters on the procedures for altering shareholders' rights and for dissolving a company. The new chapter on the new-issue market deals with The Volume of Business, a topic which was treated only briefly in the first edition. The new treatment is much more detailed and statistical, with a commentary on the Midland Bank's new-issue figures, the Blue Book's figures of personal saving and the National Institute's tabulations of company accounts. *Business Finance* is an example of the introductory text-book at its best: lucid, informative, scholarly and stimulating.]

PAYNE (P. L.). Rubber and Railways in the Nineteenth Century. Liverpool: Liverpool University Press, 1961. 8½". Pp. xiv + 246. 30*s*.

[This is a well-written and interesting piece of business history. Its subject is the firm of George Spencer and Company, whose fortunes were based on the sale of rubber springs for use in railway buffers. Among the most interesting sections of the book is that dealing with the firm's price policy, which involved a large element of discrimination between buyers. Spencer's products were protected by patents, and its agents sought all the time to differentiate them in the minds of customers from those of rivals. The cultivation of the goodwill of railway engineers and officials by *douceurs* of one kind or another was also an important element in sales promotion. One gap in his treatment which the author freely acknowledges is that the firm's papers cast practically no light on Spencer himself as a man, and his entrepreneurial qualities can therefore only be inferred indirectly from the firm's performance.]

RAUNER (R. M.). Samuel Bailey and the Classical Theory of Value. London: Bell & Sons for the London School of Economics, 1961. 9". Pp. 162. 30*s*.

[To be reviewed.]

RICHARDSON (L. F.). Statistics of Deadly Quarrels. London: Stevens, 1960. 9¼". Pp. xliv + 373. 63*s*.

RICHARDSON (L. F.). Arms and Insecurity. A Mathematical Study of the Causes and Origins of War. London: Stevens, 1960. 9¼". Pp. xxv + 307. 63*s*.

[These two posthumous books deal in a novel fashion with the causes of war. The author was an expert applied mathematician who had by his ingenuity become an outstanding meteorologist: in the books he applied the same abilities to sift the statistical evidence and to test various theories about the causes of wars. *Statistics of Deadly Quarrels* includes a mass of statistical information about wars and murders, and great inventiveness is displayed in an analysis of these figures in order to probe various commonly believed theories about the origins of war. *Arms and Insecurity* is concerned with the theory that wars are the product of a feed-back process of precautionary competitive armament. Highly ingenious techniques are used to fit the mathematical model and to estimate in each historical context the parameters which determine whether and when the process would become cumulative and unstable. Various fashionable beliefs about the efficacy of deterrents are critically examined in the light of the statistics of armament expenditure. Both books display outstanding originality, and their writing was evidently inspired by a spirit of missionary dedication. Many may consult them for miscellaneous facts and for fodder for propaganda; a few will relish the analytical chapters which are the fruit of the author's main purpose. The importance of these books will lie not so much in the many highly original ideas advanced, for many of these will admittedly appear far-fetched, as in the stimulus they may give to even one or two of those readers who can absorb the theoretical chapters: the stimulus to make their own attempts to extend the scientific approach and impartial quantitative analysis to the study of political questions of outstanding importance.]

SIDNEY (E.) and BROWN (M.). The Skills of Interviewing. London: Tavistock, 1961. 9". Pp. xii + 396. 35*s*.

[To be reviewed.]

STRAUSS (E.). The Ruling Servants. Bureaucracy in Russia, France—and Britain? London: Allen & Unwin, 1961. 9". Pp. 308. 30*s*.

[The first part of this book is a general essay on bureaucracy. This is followed by historical studies of the role of the civil servant in Russia, France and Britain. The author's main analytical conclusion is similar to that of Trotsky: "large-scale administration tends to develop substantial symptoms of bureaucratic degeneration [understood to mean a situation where the power of a hierarchical bureaucracy is exercised without any effective outside check or control] only when it functions within a field of sharply opposed social forces; it tends to change into bureaucratic rule only when these forces are nearly equal in absolute strength so that their conflict creates an equilibrium of power."]

THEOCHARIS (R. D.). Early Developments in Mathematical Economics. London: Macmillan (New York: St. Martin's Press), 1961. 9". Pp. x + 142. 28*s*.

[To be reviewed.]

Australian

ARNDT (H. W.). The Australian Trading Banks. Melbourne: Cheshire, 1960. Second Edition. 9". Pp. vii + 238. 30*s*.

[The first edition of this book appeared in 1957. A new edition has been made necessary by the important changes in Australian legislation and institutions since that time. The book provides a comprehensive survey of the assets and liabilities of the Australian banks and of their relation to the capital market. A concluding chapter deals with monetary policy.]

New Zealand

ROSENBERG (W.). Full Employment. Can the New Zealand Economic Miracle Last? Wellington, N.Z.: A. H. & A. W. Reed, 1960. 8¼". Pp. 118.

[The average level of unemployment in New Zealand since the war has been the lowest in the world (0·25% or less). Mr. Rosenberg takes pride in this and sets out to explain in more or less popular terms how it has been made possible and how it may be maintained. After an outline of the history of the New Zealand economy in the last thirty or so years he argues strongly against any surrender to "the sirens of monetary orthodoxy." He is not very keen on the inflow of capital to New Zealand, and he favours import restrictions, if necessary, to maintain balance-of-payments equilibrium. He is particularly opposed to the suggestion that New Zealand should now at last join the I.M.F., because he regards Dr. Jacobsson as one of the most dangerous of the sirens.]

Indian

GOPAL (M. H.). The Finances of the Mysore State, 1799–1831. Bombay: Orient Longmans, 1960. 8". Pp. xii + 267. Rs. 15.

[This is part of the author's planned history of Mysore's finances from 1782 to 1951. It covers an important period when the State was ruled by the Maharaja or a Regent and provides a mass of valuable information on the problems of revenue and expenditure. The author has used as his source material the voluminous records available in the British Museum and the old India Office Library, especially the correspondence and proceedings of the Madras Government. At times the excessive detail and the lavish use of statistics make the reading difficult, but the book is a significant contribution to our knowledge of Indian economic history.]

KAPOOR (I. M.). Indian Currency. Allahabad: Kitab Mahal, 1960. 8½". Pp. vi + 200. 10*s*.

[This is a text-book for Indian undergraduates. The first part gives a historical survey of finance and currency from the mid-nineteenth century to 1947. Part II describes and analyses some of the currency problems under the plans. While the book provides a good deal of useful information, the treatment is too superficial and elementary for advanced students.]

PILLAI (G. K.). Origin and Development of Caste. Allahabad: Kitab Mahal, 1959. 7". Pp. ix + 271. 8*s*. 10*d*.

[This is one of a series of books written by the Director of the Centre of Indology at Allahabad with the aim of cleaning up "misrepresentations" about ancient Indian history. The author attempts to disprove the Brahmanic interpretation of the religious sanction for caste and also criticises the view that caste had political roots in the Aryan invasions. His main theme is that the Aryans never invaded India and that caste was an indigenous growth based on primitive totemism and ancestor worship. Although there are many interesting and provocative ideas in this book, it is too superficial and undocumented to provide a definitive study of so complex a question as the origins of caste.]

PREMJI (M. H. H.). Food Problem in India. Bombay: Popular Book Depot, 1960. 8¼". Pp. v + 157. Rs. 5.

[This short book forcibly expresses the views on Government planning of the Federation of All-India Foodgrain Dealers Associations of which the author is President. Not surprisingly, State Trading in food is the main subject of attack, and the author sees the "futile" intervention of the State in distributing food as a waste of resources which could more profitably be spent in encouraging food production. Although at times emotive, there are many useful criticisms of State intervention in this sector.]

RANBHISE (N. P.). Grainbanks in Marathwada. Bombay: Popular Book Depot for the Research Programmes Committee Planning Commission, New Delhi, 1960. 10". Pp. ii + 209 + vi. Rs. 8.

[This is the outcome of an inquiry into the origins, working and problems of grain banks in an area which was once part of Hyderabad. The author demonstrates that, largely owing to incompetent management and inadequate storage facilities, these banks have not operated efficiently. He provides abundant statistical tables but no index.]

RAU (B. N.). India's Constitution in the Making. Madras: Orient Longmans Private Ltd. (London: Longmans, Green and Co.), 1960. 8½". Pp. lxx + 510.

[The author was adviser to the Constituent Assembly during the formation of the new Constitution, and therefore had a detailed knowledge of the problems raised and the methods of tackling them. This posthumous collection of his notes, memoranda and printed articles, while neither an analysis of the Constitution nor a definitive history, provides a valuable source of material for Indian constitutional historians.]

SHAH (K. C.). Pattern of Corporate Savings and Investments. Bombay: Popular Book Depot, 1960. 9". Pp. xvi + 243. Rs. 15.

[This book presents a great deal of useful information on the problems and sources of funds for Indian industry. In particular, there is a detailed analysis, well illustrated with statistics, of the financial structure of five major industries—cotton, jute, iron and steel, paper and cement.]

TRIPATHY (R. N.). Federal Finance in a Developing Economy. Calcutta: World Press Private (37 College St., Calcutta 12), 1960. 9". Pp. xvi + 239. 25*s*.

[In this well-written and well-produced book there is much detail on the financing of the first and second plans. The author is highly critical of the present system of finance in India and argues that the maxims of utilitarian finance are not the best criteria of fiscal policy in the context of economic growth. Among his many subjects of criticism are the inadequacy of planning organisations at the regional and base levels and the dangerous reliance of the third planners on foreign aid.]

Pakistani

MAHBUBUL HAQ and KHADIJA KHANAM. Deficit Financing in Pakistan. Karachi: Institute of Development Economics (Old Sind Assembly Building, Bunder Road, Karachi), 1961. 9". Pp. 68.

[This paper sets out to estimate the rate of deficit financing in Pakistan between 1951 and 1960, to examine the impact of deficit financing on the money supply and on inflation, and to define the safe limit of deficit financing for the future in the light of past experience. The safe limits of deficit financing are defined in terms of the Cambridge version of the quantity-equation: the safe rate of increase of the stock of money is equal to the rate of increase of physical output plus the rate of increase of k. The authors' data show, as they admit, that both the relationship between the amount of deficit financing and changes in the money supply and the relationship between changes in the money supply and changes in the price-level have been extremely loose in recent years. They believe, however, that this is largely a short-period problem and that for longer-period purposes (*e.g.*, for the period of the Second Five Year Plan) the approach described is an appropriate one.]

South African

FRANZSEN (D. G.). Economic Growth and Stability in a Developing Economy. Some Aspects of the Union's Post-war Experience. Pretoria: J. L. Van Schaik, 1960. 9". Pp. 102.

[This short book is an interesting description of the general aims of economic policy in the semi-developed economy of South Africa and the measures adopted by governments in the post-war period in pursuance of these aims. The author has a good grasp of economic theory in this field and makes level-headed use of it in appraising the role of monetary and fiscal policy. There are also some useful discussions of the comparative experiences of other countries, and a good deal of reference is made to standard works in other countries, such as the *Radcliffe Report*. Although some might not find this work intellectually exciting, there is nevertheless more to be learned from it than many longer and more pretentious books.]

Uganda

Wrigley (C. C.). Crops and Wealth in Uganda. East African Studies No. 12. Kampala, Uganda: East African Institute of Social Research, 1959. (Distributed outside East Africa by Kegan Paul, Trench, Trubner & Co., 43 Great Russell Street, London, W.C.1.) 9¼″. Pp. 84. 16*s*.

[This is an excellent piece of work. The author describes the various stages through which the agricultural economy of Uganda has passed since the coming of the white man, showing the part played by official policy, by external market forces and by social evolution. The book is based on published documents, unpublished official records and the author's personal knowledge. It is an admirable example of the interesting results that can be achieved by an application of a proper combination of the disciplines of economics, public administration and anthropology. One's only regret is that the author's treatment of the post-war period, which is in many ways the most interesting one, is rather less thorough than his treatment of the earlier periods.]

American

Ausubel (H.). In Hard Times. Reformers Among the Late Victorians. New York: Columbia University Press, 1960 (London: Oxford University Press, 1961). 9¼″. Pp. x + 403. 42*s*.

[To be reviewed.]

Bowen (W. G.). Wage Behavior in the Postwar Period. An Empirical Analysis. Princeton, New Jersey: Industrial Relations Section, Department of Economics, Princeton University, 1960. 8½″. Pp. xiii + 137. $3.00.

[This study reaches some interesting results by the use of simple techniques. The focus of interest is chiefly on the post-war period, but the data analysed in fact go back to 1900. Comparison of unemployment with change in money wages in the United States 1900–58 shows some correlation between the two, but only a very weak one. But the correlation is much improved when account is taken also of the rate of change of unemployment. (This is similar to Phillips's and Lipsey's findings for British data, but the simple correlation between wage-changes and the absolute level of unemployment is much weaker than Phillips and Lipsey found.) Differences in behaviour between parts of the period are then noted and possible explanations suggested. Finally, a cross-section study of inter-industry differences is given. The significance of the degree of unionisation, the degree of concentration and of profit levels are here analysed. The degree of unionisation is found to be of some importance in booms, and the degree of concentration in recessions. A general conclusion is that in almost all circumstances, except when there has been very heavy unemployment, wages have tended to rise faster than productivity. This held over the whole period, not only since the Second World War. The prospect of stabilising prices completely is therefore not hopeful; but the author believes that judicious use of fiscal and monetary policy, combined possibly in market-power sectors, should prevent price-increases from getting out of hand, without too high a cost in terms of unemployment.]

Braibanti (R.) and Spengler (J. J.). (Ed.). Tradition, Values, and Socio-Economic Development. Durham, North Carolina: Duke University Press, for the Duke University Commonwealth-Studies Center (London: Cambridge University Press), 1961. 9¼″. Pp. viii + 305. 48*s*.

[To be reviewed.]

Brown (M. P.) and May (E. G.). Operating Results of Multi-Unit Department Stores. Boston, Mass.: Harvard Business School (Division of Research, Soldiers Field, Boston 63, Mass.) (London: Bailey Bros. & Swinfen), 1961. 11″. Pp. vii + 71. 24*s*.

[The regular surveys of the operating results of various classes of stores, published by the Harvard Business School, have long been well known. The present publication is the first full-scale inquiry they have undertaken into the operating results of department-store branches. The growth of branch operations has been a notable feature of the post-war period.]

Bry (G.). Wages in Germany 1871–1945. Princeton, New Jersey: Princeton University Press, 1960 (London: Oxford University Press, 1961). 9¼″. Pp. xxvi + 486. 80*s*.

[To be reviewed.]

COMMITTEE FOR ECONOMIC DEVELOPMENT. Growth and Taxes. Steps for 1961. New York: Committee for Economic Development Research and Policy Committee (711 Fifth Avenue, New York 22), 1961. 11″. Pp. 38 + 15. $1.00.

[This contains a number of suggestions for improving the United States Federal tax system. The main ones put forward are a substantial reduction in the upper-bracket individual tax rates, an alteration in the system of tax exemption on interest on state and local-government securities, greater flexibility in the calculation of depreciation allowances and more effective enforcement.]

DUNLOP (J. T.). (Ed.). Potentials of the American Economy. Selected Essays of S. H. Slichter. Cambridge, Mass.: Harvard University Press (London: Oxford University Press), 1961. 9½″. Pp. xxiv + 467. 60*s*.

[The late Professor Slichter was one of the best-known economists in the United States, but his work was less well known in this country. This collection of twenty-eight essays has been designed to present a cross-section of his work. It is divided into four sections, dealing respectively with the American economy, the economic outlook, industrial relations, and economic analysis and policy issues. The articles include some which originally appeared in newspapers as well as contributions to learned journals. They range in time from 1920 to 1959.]

FISHER (I. N.). A Bibliography of the Writings of Irving Fisher. New Haven, Connecticut: Yale University Library, 1961. 9″. Pp. xii + 543. $10.00.

[This bibliography contains over 2,000 items, and its preparation has been a major undertaking. All Fisher's works that could be traced have been included and are arranged in chronological order. They include his writings on health and general subjects as well as economics.]

HABERLER (G.). Growth and Balance in World Trade. The Galen L. Stone Inaugural Lecture. Cambridge, Mass.: Harvard University Press, 1961. 8″. Pp. 21.

[This inaugural lecture was delivered in 1957 and has been available on request from Harvard University Press since then. It is now being more generally distributed. The lecture presents in fairly familiar terms Professor Haberler's liberal viewpoint on current problems of world trade. Among the chief topics discussed are the close causal connection between internal inflation and a country's balance of payments, the importance of reducing American tariffs, and the relation between international economic policy and the cold war.]

HACKER (A.). Political Theory: Philosophy, Ideology, Science. New York and London: The Macmillan Company, 1961. 9½″. Pp. xiv + 609. 49*s*.

[To be reviewed.]

HAYES (D. A.). Investments: Analysis and Management. New York: The Macmillan Company, 1961. 9½″. Pp. x + 598.

[This is a practical treatise for investors. The author states his purpose to be primarily to stimulate investors' reasoning power and to bring out the rationale of alternative procedures of investment analysis. The main part of the book is concerned with the analysis and valuation of the prospects of individual companies, viewed first generally then industry by industry. A final section deals with portfolio management.]

HEADY (E. O.) and DILLON (J. L.). Agricultural Production Functions. Ames, Iowa: Iowa State University Press, 1961. 9″. Pp. viii + 667. $6.95.

[To be reviewed.]

HITCH (C. J.) and MCKEAN (R. N.). The Economics of Defense in the Nuclear Age. Cambridge, Mass.: Harvard University Press, 1960 (London: Oxford University Press 1961). 9½″. Pp. 422. 45*s*.

[To be reviewed.]

KARREMAN (H. F.). Methods for Improving World Transportation Accounts, Applied to 1950–1953. New York: National Bureau of Economic Research (261 Madison Avenue, New York 16, N.Y.), 1961. 9″. Pp. xvii + 121. $1.50.

[To be reviewed.]

MANN (A.). La Guardia: a Fighter against his Times, 1882–1933. Philadelphia and New York: J. B. Lippincott, 1959. 8¼″. Pp. 384.

[This first volume of a two-volume biography of La Guardia carries the story up to his election as Mayor of New York in 1933. It is a readable and vivid piece of work. The author does not engage in much formal analysis, but he succeeds well in his objective of tracing through La Guardia's career the struggle for power between the various ethnic groups in New York.]

MICHAL (J. M.). Central Planning in Czechoslovakia. Stanford, California: Stanford University Press, 1960 (London: Oxford University Press, 1961). 9". Pp. xii + 274. 46*s*.

[To be reviewed.]

MINTZ (I.). American Exports During Business Cycles, 1879–1958. New York: National Bureau of Economic Research, 1961. 9". Pp. xii + 92. $1.00.

[To be reviewed.]

NORTHROP (F. S. C.). Philosophical Anthropology and Practical Politics. A Prelude to War or to Just Law. New York and London: The Macmillan Company, 1960. 8¼". Pp. x + 384. 45*s*. 6*d*.

[The author is Professor of Law and Philosophy at the Yale Law School, and his reading and interests span the entire range of political and social studies in the grand manner. He argues that "for the assurance of lasting peace, we must consider the vital law of each national group in the light of their inner beliefs and customs." This view is opposed to the Hobbesian approach, which the author believes to be too much followed in American foreign policy making. About half of the book consists of applications of the author's general views to the problems of individual countries.]

PAGLIN (M.). Malthus and Lauderdale. The Anti-Ricardian Tradition. New York: Augustus M. Kelly (400 West 23rd St., New York 11), 1961. 8". Pp. 184. $4.75.

[This is based on a doctoral dissertation submitted at the University of California, Berkeley, in 1956. The author sets out to interpret "Malthus's dual role as both contributor to the Ricardian tradition and as opponent of that tradition, the conflict between the Malthus of the *Principles* and the Malthus of the *Essay*, the extent of Malthus's intellectual indebtedness to Lauderdale, etc." The argument is developed clearly and concisely.]

PAYNE (W. F.). Industrial Demands Upon the Money Market, 1919–1957: A Study in Fund-flow Analysis. New York: National Bureau of Economic Research 1961. 9". Pp. xix + 139. $1.50.

[The purpose of this study is to analyse the variation in the flow of funds between the capital market and businesses. This is done by tracing out the movements in the various items in corporations, operating budgets and capital budgets. The technique is applied in a number of different ways. The data used relate to a group of large manufacturing corporations and to the Allis-Chalmers Manufacturing Company, taken as an example. The chief finding is that funds flow from the capital market to corporations in the boom and in the reverse direction in the slump. The potentialities of the fund-flow technique are made evident by the book, but it cannot be said that the significance to the economist of the various results revealed is made very clear.]

Predicting Population Changes in Small Areas. (Studies in Business and Economics.) College Park, Maryland: Bureau of Business and Economic Research, 1961. 11". Pp. 16.

[The various techniques in use in the United States and elsewhere are described, with full references to the literature. The conclusion is drawn that resonably reliable short-term forecasts are possible with existing techniques, given adequate research resources, but that very large margins of error are involved in larger-period forecasts. "For small areas, with rapid changes among components, five years may be rash."]

REES (A.). New Measures of Wage-Earner Compensation, 1914–57. New York. National Bureau of Economic Research, 1960. 9" Pp. ix + 26. $0.75.

[This paper presents a new statistical series on total hourly compensation of manufacturing wage-earners in the United States 1914–57. The methods of calculation are explained and the series is compared with the Bureau of Labor Statistics' series on average hourly earnings in all manufacturing.]

ROLPH (E. R.) and BREAK (G. F.). Public Finance. New York: The Ronald Press Company (15 East 26th Street, New York 10), 1961. 9". Pp. viii + 586. $7.50.

[To be reviewed.]

STRAND (K. T.). Jurisdictional Disputes in Construction: The Causes, The Joint Board, and The NLRB. Pullman, Washington: Washington State University, Bureau of Economic and Business Research, 1961. 9". Pp. 197. $5.00.

[This is based on a Ph.D. dissertation submitted in the University of Wisconsin. The author analyses the causes of jurisdictional disputes in the industry in the light of its structure and that of

the building trades unions. He then describes and assesses the various procedures that have been used to resolve them.]

Studies in Business and Economics. Employment and Earnings in Maryland Fisheries. College Park, Maryland: University of Maryland, Bureau of Business and Economic Research, 1960. 11". Pp. 12.

[This is the first section of a broader study on Maryland fisheries. The depressed state of the industry is statistically documented, and the question is raised whether, in common with fisheries elsewhere, it should be regarded as in a state of long-term decline, or whether the situation is remediable by better fishery management and related policies.]

Taylor (P. E.). The Economics of Public Finance. Third Edition. New York: The Macmillan Company, 1961. 9¼". Pp. xviii + 588. 52*s.* 6*d.*

[Previous editions of this text-book appeared in 1948 and 1953. Its emphasis is on the applied rather than on theory. Its wholly American orientation limits its usefulness to students in country.]

Tew (B.). The International Monetary Fund: Its Present Role and Future Prospects. Princeton, New Jersey: Princeton University International Finance Section, 1961. 9". Pp. 41.

[This provides an informative survey of the Fund's actions and problems since it was established. Professor Tew emphasises, amongst other things, the extent to which the Fund has been willing to innovate and pursue more flexible policies than were envisaged in its original Articles of Agreement. In looking to the future, Professor Tew confines himself to considering the role of the Fund in helping to sustain a regime of "convertibility à la 1959," though he is himself sympathetic to more radical changes like those involved by the Triffin plan. Professor Tew is not one of those who criticise the policy pursued by the Fund in its dealings with underdeveloped countries, and he thinks that although the variability of the foreign-exchange earnings of these countries puts them in some respects in a special position, it is right and proper that the Fund should lay down as a condition of aid that internal policies are pursued which will ensure that the aid really is of a short-term nature only.]

Wolfe (J. N.). The Life and Death of the Firm. Lafayette, Indiana: Institute for Quantitative Research in Economics and Management, School of Industrial Management, Purdue University, 1960. 11". Pp. 16.

[This paper is concerned with the mathematical model which supposes the fluctuations in the size of a firm to be a Markov process in which one of the columns in the transition matrix represents an absorbing state called limbo—the death of the firm. The author spells out the various appropriate formulæ for such things as the probability that a firm of given size will have been forced out of business within a given time, what chance it has of *ever* reaching one particular size (or more) from another given size, etc. These results cannot be designed to enlighten one familiar already with the theory of stochastic processes, and it is to be feared that those who have no familiarity with the subject will find some difficulty in following the argument of the paper. They may also be left in some doubt as to whether it is really any easier to estimate all the elements in the transition matrix than to estimate directly the various probabilities which can be calculated from a knowledge of those estimates. If it is not, one must suspend judgment as to the usefulness of the formulæ obtained until the author has followed up this paper with some applications.]

French

International Association of Universities. Some Economic Aspects of Educational Development in Europe. Proceedings of a Conference held at the Villa Serbelloni, Bellagio, July 1960. Paris: International Universities Bureau (6 rue Franklin, Paris XVI), 1961. 9". Pp. viii + 144.

[This contains the proceedings of a conference of educationalists and economists held under the auspices of the Ford Foundation in July 1960. Mr. John Vaizey and M. Michel Debeauvais acted as rapporteurs of the conference and are responsible for the present report. It contains a general statement of the findings agreed at the conference; a summary of the discussions; a chapter of background notes by Mr. Vaizey, in which the main issues are stated; and eight papers by individual participants, some dealing with problems of particular countries and some with general aspects of the subject. No outstandingly new ideas appear to have emerged from the conference, and much of what was said serves to underline the extreme difficulty of reaching any precise conclusions on the economic benefits of education (the economic implication and obstacles to expanding educational effort on the *cost* side are easier to ascertain); but the book as a whole provides a useful conspectus of the problems in the field.]

LE HÉGARAT (G.). Comptes Économiques Togo, 1956–1957–1958. Études Économiques Ouest Africaines, No. 3. Paris: Banque Centrale des États de l'Afrique de l'Ouest, 1961. Pp. xv + 278.

[Reviewed in this issue.]

German

HATANAKA (M.). The Workability of Input–Output Analysis. Ludwigschafen am Rhein: Fachverlag für Wirtschaftstheorie und Ökonometrie, 1960. 9″. Pp. xxii + 310.

[To be reviewed.]

Dutch

MAZUMDAR (H.). Business Saving in India. An estimate and an analysis in relation to profitability and the growth of the national saving rate. Groningen: J. B. Wolters, 1959. 9″. Pp. xxv + 280.

[This is an important, well-produced study on a field in applied Indian economics about which little is known. It is in two parts. In the first there is a preliminary discussion on tools of analysis and a useful survey, well documented, of earlier estimates of national income and savings. The major contribution of this part is the author's estimate of business savings for the period 1948–56 in corporations, unincorporated enterprises and foreign concerns. Part II, *inter alia*, contains a structural survey of the main sectors of the Indian economy, estimates of the savings–income ratio, and statistical studies of the profitability of indigenous and foreign businesses and of the relationship between corporate savings and net profits. Among the main conclusions reached are that business savings constitute nearly half of total savings in India and that unincorporated enterprises provide the bulk of the savings. As a percentage of national income, savings on average in the years 1948–53 varied between a lower limit of 7·9 and an upper limit of 8·8. The author is critical of the attitude of the planners to business saving in the past and recommends that internal financing through profit retention should be encouraged in both the private and public sectors. Unreliability of the statistics necessarily makes some of his figures dubious and his conclusions tentative. But Dr. Mazumdar has here done a useful pioneering work and poses many important questions for further study. There is a good bibliography but no index.]

MEIJ (J. L.). (Ed.). Depreciation and Replacement Policy. Amsterdam: North-Holland Publishing Company, 1961. 9″. Pp. xii + 231. 45*s*.

[To be reviewed.]

THEIL (H.). Economic Forecasts and Policy. Second edition. Amsterdam: North-Holland Publishing Company, 1961. 9″. Pp. xxxii + 567. 80*s*.

[To be reviewed.]

Finnish

JASKARI (O. V.). Depreciation Allowances and the Real Capital. Helsinki: The Finnish Academy of Science and Letters (Snellmanink. 9–11, Helsinki), 1960. 10″. Pp. 68.

[To be reviewed.]

JASKARI (O. V.). A Study in the Theory of Incidence of Taxation. Helsinki: The Finnish Academy of Science and Letters, 1960. 10″. Pp. 116.

[To be reviewed.]

Egyptian

HANSEN (B.). Inflation Problems in Small Countries. Cairo: National Bank of Egypt, 1960. 9½″. Pp. 39.

[The common thread running through these three lectures on rather different aspects of the theory of inflation is the use of the concept of excess demand, carefully specified as applying to the goods market or the factor market or other markets as the case may be. The first question tackled is the distinction between excess-demand-induced inflation and autonomous inflation. Excess-demand inflation is defined in very wide terms; for example, it is said to exist if a rise in costs under perfect competition reduces the output that would be forthcoming at unchanged prices. The trouble with this wide definition of excess-demand-induced inflation is that autonomous inflation is

defined almost out of existence—which naturally lessens the value of the distinction between the two. The second lecture is about international trade. It states the case for adjustable exchange rates not so much in order to maintain balance of payments equilibrium, but rather on the lines that were argued by Sir Ralph Hawtrey, as a way of insulating a country's price level from the effects of inflation abroad. The third lecture contains an interesting discussion of the questions as to which demands are satisfied in a condition of excess demand. This has a bearing on the analysis of forced saving.]

Israeli

GAATHON (A. L.). Capital Stock Employment and Output in Israel, 1950–1959. Jerusalem: Bank of Israel Research Department, 1961. 9″. Pp. 129. IL. 3.00.

[Estimates of the capital stock in Israel are here used to show trends in productivity 1950–59. The data are presented separately for different sectors of the economy and for different sub-periods, and comparisons are made with findings in other countries. Overall productivity is calculated by the output-per-unit-of-input method, which measures inputs as a weighted average of labour and capital. Some of the results are very interesting. Output and output per head grew exceptionally rapidly during the period, but the excess over growth rates found in other countries was due largely to the high rate of investment, which was made possible by finance from abroad. The performance of output per unit of input has not been so outstanding, and has varied considerably between sub-periods. It actually decreased in 1950–52, rose steeply in 1952–55 and rose considerably more slowly in 1955–59. One possible explanation suggested for this recent slowing down is the very heavy investment in public and private services and in transportation.]

Official

AMERICAN

The Federal Reserve System: Purposes and Functions. (Fourth Edition.) Washington, D.C.: Board of Governors of the Federal Reserve System, 1961. 8″. Pp. xvi + 238.

[The purpose of this book is to promote better public understanding of the way the Federal Reserve System works. It describes its aims, organisation and operations. The book is by no means just a dull recital of facts and techniques. It includes also clear and interesting discussions of the more general economic background against which the system works. It may be recommended to the British student as an authoritative up-to-date introduction to the study of the system. An earlier edition was noted in the ECONOMIC JOURNAL of September 1954. The present edition has been extensively revised to take account of the lessons learnt since that time.]

JOINT ECONOMIC COMMITTEE, CONGRESS OF THE UNITED STATES. Economic Programs for Labor Surplus Areas in Selected Countries of Western Europe. Washington, D.C.: Government Printing Office, 1960. 9″. Pp. 15. $0.25.

[This reports the results of an inquiry prompted by the Federal Government's concern over areas of relatively high rates of unemployment in the United States. The Background of the problem of regional unemployment in Europe is briefly reviewed and an account is given of the various official measures taken to deal with the problem in Belgium, Denmark, Germany, France, Britain, Northern Ireland, Italy and Sweden. The policies adopted in each of these countries with regard to defining eligible areas and allowing loans, grants, tax incentives and other privileges are summarised in comparative form in a large fold-out table.]

NATIONAL SCIENCE FOUNDATION. Current Projects on Economic and Social Implications of Scientific Research and Development, 1960. Washington, D.C.: National Science Foundation, Government Printing Office, 1960. 9″. Pp. v + 124.

[Information is given on 216 research projects, classified according to subject. The field of study defined by the title is broadly interpreted, and the projects listed include research on the theory of innovations and technical progress, on decision-making and on the structure of the American economy.]

NATIONAL SCIENCE FOUNDATION. Federal Funds for Science IX. The Federal Research and Development Budget, Fiscal Years 1959, 1960 and 1961. Washington, D.C.: National Science Foundation, Government Printing Office, 1960. 10″. Pp. iii + 89. $0.50.

[Statistics on Federal expenditure on research and development are here presented in tables and charts, according to various classifications: by agency responsible for the expenditure; by agency undertaking the research (direct government, private business and private non-profit-making); by branch of science concerned; by purpose (research as opposed to development); and in a number of other ways.]

JAPANESE

Business Cycles and Entrepreneurial Expectations. An Analysis of Business Tendency Surveys in Japan. Tokyo: Economic Research Institute, Economic Planning Agency, Japanese Government (Kasumigaseki, Chiyoda-ku, Tokyo), 1960. 11½". Pp. 44.

[This scholarly paper is a study of businessmen's expectations, as revealed by the replies of a sample of 300 Japanese companies to questionnaires relating to the expected and realised directions of change of output, sales, prices and a number of other variables. The results are analysed under three headings: (1) the accuracy and degree of optimism of expectations, compared with what has been found in similar surveys in other countries; (2) the usefulness of business expectations surveys for forecasting purposes; (3) the forces that determine expectations.]

National Income Accounts, 1958 and Financial Transaction Accounts, 1956–58. Tokyo: Economic Research Institute, Economic Planning Agency, Japanese Government 1960. 11½". Pp. 60.

[This is in two parts. The first contains national income data for 1958, together with revised data for earlier years. The second part provides financial transactions accounts for the years 1956–58. These are the first financial transactions accounts to be made available for Japan. The figures are accompanied by a text commenting on a number of interesting findings that emerge. The sources of finance used by Japanese business are shown to differ considerably from those usually found elsewhere, the importance of self-finance in particular being relatively low. This helps to make monetary policy effective. The characteristic movement of the supply and demand for funds over the business cycle is also traced out.]

KENYA

Domestic Income and Product in Kenya. A Description of Sources and Methods with Revised Calculations from 1954–1958. Nairobi: East African Statistical Department, 1959. Pp. 97. 8*s*.

[Reviewed in this issue.]

SUDANESE

HARVIE (C. H.) and KLEVE (J. G.). The National Income of Sudan, 1955/56. Khartoum: Department of Statistics, the Republic of the Sudan, 1959. 11½". Pp. 115.

[Reviewed in this issue.]

INTERNATIONAL

The Economic Development of Tanganyika. Report of a mission organised by the International Bank for Reconstruction and Development at the request of the Governments of Tanganyika and the United Kingdom. Baltimore, Maryland: Johns Hopkins (London: Oxford University Press), 1961. 9". Pp. xxviii + 548. 68*s*.

[To be reviewed.]

ORGANISATION FOR EUROPEAN ECONOMIC CO-OPERATION. Economic Conditions in Member and Associated Countries of the O.E.E.C. Germany. Switzerland. Paris: O.E.E.C., 1960. 9½". Pp. 35, 35. 3*s*. each.

[The O.E.E.C. publishes annual surveys of the economic conditions in each member and associated country. These two publications belong to this series. They provide a compact and informative survey of events up to the third quarter of 1960.]

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION. International Organisations in the Social Sciences. Paris: UNESCO, 1961. 10½". Pp. 145. 7*s*. 6*d*.

[This contains particulars of eighteen organisations, included among which are the Econometric Society and the International Economic Association. Full information is given on the organisation, aims and activities of the organisations and of their officers and constitutions. A short introductory essay by Jean Meynaud on International Co-operation in the Field of the Social Sciences precedes the main text.]

Growth, Wages, Money

SIR DENNIS ROBERTSON

In the Marshall Lectures for 1960 Sir Dennis Robertson takes a series of rapid glances at some of the subjects of acute economic controversy, including the recent Report of the Radcliffe Committee on the Working of the Monetary System. *5s. net*

Economic Doctrines of Knut Wicksell

CARL G. UHR

This systematic study of the Swedish economist, best known for his work on monetary theory, establishes him as in the first rank of economic theoreticians of this century. UNIVERSITY OF CALIFORNIA PRESS. *60s. net*

Arms and Economics

SIR LESLIE ROWAN

In the Lees Knowles Lectures for 1960 Sir Leslie Rowan discusses some of the problems facing Britain and deals in detail with three aspects of economic affairs: the managing of our own economy, the role of international economic co-operation and economic assistance for underdeveloped countries. *5s. net*

The Economic Background to Investment

H. B. ROSE

A useful text-book presenting investment and finance in their broad economic framework for all interested in financial matters. Published for the Institute of Actuaries. *674 pages.* *40s. net*

Industrial Growth and Population Change

E. A. WRIGLEY

An examination of industrial growth in the coalfield areas of Northern France, Belgium and Western Germany, 1850–1914. Variations in economic growth, and sociological and demographic features are also considered. Cambridge Studies in Economic History. *32s. 6d. net*

CAMBRIDGE UNIVERSITY PRESS

A

A S P PUBLICATION, 1961—62 (mid)

P

1. A DECADE OF ECONOMIC DEVELOPMENT AND PLANNING IN INDIA

Editor: M. R. SINHA: 400 pp: Price—Rs. 20: $ 6: 30s.

A comprehensive treatise on the subject, covering the period 1951–1960, annotated with diagrams, statistics, and analytical comments by eminent economists on various problems of planned development in India, with a foreword by Dr. V. K. R. V. Rao, Director, Institute of Economic Growth, Delhi.

2. INDUSTRIAL ASIA YEAR BOOK 1961–62

Editor: M. R. SINHA: 300 pp: Price—Rs. 15: $ 4: 25s.

A companion volume to Industrial Asia Year Book 1959 which has been so well received by the press and the people.

3. OCTOPUS OF CHINESE EXPANSION

By M. R. SINHA: 250 pp: Price—Rs. 10: $ 3: 15s.

An exhaustive treatment of the extra-territorial expansion of Chinese communists in S.E. Asian countries having common border with China. The problem of the plural society, consisting of Chinese Communists and the indigenous population of the countries of S.E. Asia, falls also within the scope of the volume.

4. LETTERS TO THE FIRST CITIZEN OF THE INDIAN REPUBLIC ON NATIONAL INTEGRATION

Editor: M. R. SINHA: 200 pp: Price—Rs. 10: $ 3: 15s.

The volume will X-ray the problems of National Integration, both historical and contemporary.

5. THE INDIAN TRIANGLE—STEEL, COAL AND CEMENT

By M. R. SINHA: 250 pp: Price—Rs. 25: $ 8: 40s.

The volume will plead for nationalisation of the three industries on the basis of survey and research conducted by the author.

6. CONTEMPORARY CULTURE OF THE EAST

Editor: M. R. SINHA: 250 pp: Price—Rs. 30: $ 10: 50s.

The volume will examine the trends of cultural patterns developing in the countries of Asia, illustrated by photographs and tabulated readings of research and surveys conducted for the purpose.

7. READINGS IN ASIAN STUDIES

Editor: M. R. SINHA: 200 pp: Price—Rs. 10: $ 3: 15s.

Collection of articles published in ASIAN STUDIES during 1956–1961.

PLACE your ORDER ON

" OUT-OF-THE-PRESS " supply basis.

ASIAN STUDIES PRESS

Dhun-Villa, Jaiprakash Road, Andheri, Bombay 58 (INDIA)

BOOKS ON

ECONOMICS AND ECONOMIC HISTORY

•

New and Secondhand
English and Foreign

•

W. Heffer & Sons Limited

Petty Cury · Cambridge · England

BUSINESS FINANCE

F. W. Paish, M.C., M.A. 2nd edition. Since the first edition of this book was published in 1953, much has happened in the financial world. Therefore the contents have been completely revised and new statistics incorporated to bring it fully up to date. "As always, Professor Paish expresses himself with admirable lucidity and directness. He writes with an intimate practical, as well as theoretical, knowledge of his subject, and his book should be invaluable not only to students of economics but also to budding bankers and stockbrokers and accountants, and indeed to any young man or woman intending to make a career in the City or business administration."—*Economic Journal*. 15/- net

PITMAN

ECONOMICS

The Science of Prices and Incomes

H. SPEIGHT

This book begins with a statement and definition of three criteria of any economic system—efficiency, equity and stability—and proceeds to consider three primary questions: What conditions are required for the fulfilment of these criteria? Why are they not fulfilled in the real world? What can be done to bring us nearer to the ideal? In attempting to answer them, it introduces facts and description as well as pure theory, and considers the difficulties of applying theory to the real world. The book falls into two main parts—micro-economics (concerned with relative prices) and macro-economics (mainly concerned with aggregates)—separated by chapters on competition and welfare, and money and banking.

No previous knowledge of economics is assumed on the part of the reader; the book provides the basic material for a two-year economics course for undergraduates and students preparing for examinations in banking, secretaryship and accountancy. Many diagrams are included in the text. **42s**

METHUEN

36 ESSEX STREET, LONDON, WC2

INTERNATIONAL ECONOMIC PAPERS

Translations prepared for the International Economic Association

No. 10

CONTENTS

Tax Principles and Tax Policy . . . . . ERIK LINDAHL
Ekonomi Politik Samhälle, 1950

Price Stability, Economic Growth and Income Distribution . . . . . GOTTFRIED BOMBACH
Schweizerische Zeitschrift für Volkswirtschaft und Statistik, 1959

International Inequalities and General Criteria for Development Aid . . . . . H. THEIL
De Economist, 1955

Note on the Cost of Railway Transport . . . . . W. NORDLING
Annales des Ponts et Chaussées, 1886

Marginal Utility . . . . . PAUL ROSENSTEIN-RODAN
Handwörterbuch der Staatswissenschaften, 1927

Inflation in Chile: An Unorthodox Approach . . . . . OSVALDO SUNKEL
El Trimestre Economico, 1958

The Stockholm School versus the Quantity Theory . . . . . BERTIL OHLIN
Ekonomisk Tidskrift, 1943

The Role of Amortization in Investment Programming . . . . . MAURICE BOITEUX
Revue de Recherche Operationnelle, 1957

Some Problems of Price Formation in a Socialist Economy . . . . . Y. MALISHEV
Voprosy Ekonomiki, 1957

Frederik Zeuthen . . . . . HANS BRAGE
Nationalekonomisk Tidskrift, 1959

Classified Index of I.E.P., Volumes 1–10

London 1960 **New York**

MACMILLAN & CO. LTD **THE MACMILLAN COMPANY**

ROYAL STATISTICAL SOCIETY

The *Journal of the Royal Statistical Society* is published in two series: SERIES A (GENERAL), four times a year, 25s. each part, annual subscription £4 4s., U.S. $12, post free; SERIES B (METHODOLOGICAL), two issues a year, 30s. each part, annual subscription £3 2s., post free.

Volume 124, SERIES A (GENERAL) **CONTENTS** **Part 2, 1961**

The Role of Models in Operational Research (With Discussion) . . . K. D. TOCHER
Research on Mail Surveys (With Discussion) . . . CHRISTOPHER SCOTT
The International Distribution of Incomes . . . S. ADELMAN and A. T. PEACOCK
The Analysis of Survey Data on an Electronic Computer . . . H. R. SIMPSON
A Practical Demonstration of a Needle Experiment Designed to Give a Number of Concurrent Estimates of π . . . B. C. KAHAN
A Note on the Paper by W. E. Thomson on "ERNIE—a Mathematical and Statistical Analysis" . . . EVE BOFINGER and V. J. BOFINGER
The Recent Controversy over Resale Price Maintenance . . . G. BORTS
Reviews, Current Notes, Obituary: E. C. Fieller, Book List

Obtainable through any bookseller or direct from:

Royal Statistical Society, 21 Bentinck Street, London, W.1

ECONOMICA

Published Quarterly

New Series, Volume XXVIII, 1961, No. 110 **May, 1961**

CONTENTS

Alternative Views of Central Banking . . . R. S. SAYERS
Hire Purchase Controls and Fluctuations in the Car Market . . . J. R. CUTHBERTSON
The Relation between Profits and Wage Rates . . . RICHARD G. LIPSEY and M. D. STEUER
Domestic Air Transport Policy—Part I . . . LUCIEN FOLDES
Aspects of Economic Growth in the First Half of the Eighteenth Century . . . A. H. JOHN
Alfred Marshall and Richard T. Ely: Some Unpublished Letters . . . A. W. COATS
A Plan for Increasing Liquidity: A Critique . . . SIR ROY HARROD
Progress and Profits . . . B. A. CORRY
Book Reviews **Books Received**

Annual Subscription £1 5s. 0d. per annum, post free. Copies can be obtained from any bookseller or from the Publication Department of the London School of Economics, Houghton Street, W.C.2.

OXFORD ECONOMIC PAPERS

Editorial Board: N. H. Leyland (General Editor), P. D. Henderson, J. R. Hicks, C. M. Kennedy, Sir Donald MacDougall, G. B. Richardson, M. F. G. Scott, J. F. Wright (Secretary)

Volume 13 **June 1961** **Number 2**

On Teaching Public Finance . . . URSULA K. HICKS
Direct Additivity and Consumers' Behaviour . . . H. A. JOHN GREEN
The Nature and Effects of Gold Hoarding in Under-Developed Economies . . . A. G. CHANDAVARKAR
The International Monetary Fund and Balance of Payments Adjustment . . . W. R. ALLEN
Costs in Retail Distribution in Great Britain, 1950–7 . . . S. POLLARD and J. D. HUGHES
Inflation and Growth: Some Lessons to be Drawn from Latin-American Experience . . . G. MAYNARD
Balanced Growth and International Specialization: A Diagrammatic Analysis . . . J. M. MONTIAS
Cyclical Fluctuations and Economic Growth . . . H. NEISSER
Cyclical Fluctuations and Economic Growth: A Reply to Mr. Neisser . . . L. L. PASINETTI

Oxford Economic Papers is published three times a year. The pre-paid subscription price is 35s. 0d. post free, and the price of a single copy 16s. 0d. net. Orders may be placed with any bookseller or sent direct to the Publisher:

OXFORD UNIVERSITY PRESS, Amen House, Warwick Square, London, E.C.4

THE REVIEW OF ECONOMIC STUDIES

VOLUME XXVII (3), No. 77 **CONTENTS** **JUNE 1961**

The Analogy Between Atemporal and Intertemporal Theories of Resources Allocations . . . E. MALINVAUD
Comparative Advantage and the Theory of Tariffs: A Multi-Country, Multi-Commodity Model . . . RONALD W. JONES
Additive Logarithmic Demand Functions and the Slutsky Relations . . . KENNETH J. ARROW
Imperfect Capital Markets and the Theory of Investment . . . LUCIEN FOLDES
Monopolistic Competition and General Equilibrium . . . TAKASHI NEGISHI
Congestion and Idle Capacity in an Economy . . . A. B. ATKINSON and H. B. MALMGREN

With Vol. XVI (1), the Review reverted to three issues per volume. Subscription: 25s. 0d. per academic year; U.S.A. and Canada: $5. Editorial communications should be sent to the Editor, Review of Economic Studies, Nuffield College, Oxford. Articles from the U.S.A. and Canada should be sent to P. A. Samuelson, Massachusetts Institute of Technology, Cambridge, Mass. All other communications to the Secretary, Review of Economic Studies, 7 West Road, Cambridge, England. Cheques should be made payable to the Review of Economic Studies.

POPULATION STUDIES

A JOURNAL OF DEMOGRAPHY

Edited by D. V. GLASS and E. GREBENIK

Volume XV, No. 2 CONTENTS **July, 1961**

Birth Control in Britain, Part 1 . . . . . G. ROWNTREE and R. PEARCE
The Rise and Decline of English Neo-Malthusianism . . . . . F. H. AMPHLETT MICHELWRIGHT
Some Estimates of the Reliability of Survey Data on Family Planning . . . . . C. F. WESTOFF, R. G. POTTER, JR., and P. C. SAGI
A Study of Fertility and Infant Mortality in an Urban African Community . . . . . L. T. BARENBROST and B. UNTERHALTER
Book Reviews

Subscription price per volume of 3 parts 42*s.* net, post free (or American currency $6.75).
Single parts £1 each plus postage (American $2.25, post free).

Published by the Population Investigation Committee, at the London School of Economics and Political Science, 15 Houghton Street, London, W.C.2

THE INDIAN ECONOMIC JOURNAL

The Quarterly Journal of the Indian Economic Association

Edited by C. N. VAKIL, R. BALAKRISHNA, P. R. BRAHMANAND

Vol. VIII **April 1961** **No. 4**

A Note on Indian Fertility Differentials . . . . . WARREN C. ROBINSON
Economic Stagnation and Prospects of Uttar Pradesh . . . . . BALJIT SINGH
Agricultural Labour in 1956-57. An Analysis of the Trends in their Economic Conditions during 1950-51 to 1956-57 . . . . . C. H. SHAH
The Balance of Payments Problem and Economic Development . . . . . RAJENDRA KUMAR
Uncertainty, Capital Use and Firm-Household Relationship . . . . . B. P. DUTIA
Reviews: Notes: News

All communications should be sent to

The Editor, The Indian Economic Journal, Department of Economics, University of Bombay Bombay 1 (India)

Per copy: Rs. 5 or 7s. 6d. or $1.25 post free *Per annum: Rs. 15 or £1 5s. or $4 post free*

SOCIAL AND ECONOMIC STUDIES

A Journal devoted to research, especially in the problems of economic growth, social change, and political action in underdeveloped territories.

Among recent papers and publications are the following:

A National Accounts Study of the Economy of Barbados . . . . . JEANETTE BETHEL
The Economic Future of British Guiana . . . . . PETER NEWMAN
West Indian Household Budgets . . . . . G. E. CUMPER
Comments on "The Economic Future of British Guiana," by Peter Newman . . . . . K. BERRILL, A. P. THORNE, G. E. CUMPER, K. E. BOULDING
Export Stimulation, Import Substitution, and Latin-American Development . . . . . GERALD M. MEIER
Note on "Spurt" Inflation . . . . . JOHN H. ADLER
Some National Income Aggregates for Jamaica at Constant Prices . . . . . JEANETTE BETHEL
The Imputation of Values to Intra-Company Exports: The Case of Bananas . . . . . R. A. LABAROS
Mixed Economic Statecraft and Democratic Safeguards . . . . . KENNETH K. KURIHARA

Annual subscription per volume of 4 numbers £1 10*s.* 0*d.*; U.S., $4.25; W.I., $7.20.

INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH
University College of the West Indies, Jamaica, W.I.

THE SOUTH AFRICAN JOURNAL OF ECONOMICS

Editors: C. S. RICHARDS (*Managing Editor*), W. J. BUSCHAU, H. M. ROBERTSON

Volume 29, No. 1, MARCH, 1961

Political and Economic Aspects of Planning of the National Economy in the U.S.S.R. and the Soviet Bloc . . . . . PROFESSOR KAREL HULŠĚKA
Higher Productivity and Higher Wages of Native Labour in South Africa . . . . . DR. S. P. VILJOEN
Comment . . . . . PROFESSOR W. F. J. STEENKAMP
Professor Wijkholds' Budget Theory of Money (Review Article) . . . . . DR. D. J. J. BOTHA
Reviews—Recent Periodicals—New Books—Official Publications

Single Copy Ro.95 (9*s.* 6*d.*) Annual Subscription R3.50 (£1 15*s.* 0*d.*)

Orders for single copies and subscriptions may be placed through all leading booksellers and the Journal Office, P.O. Box 5316, Johannesburg.

Enquiries regarding Advertising and Advertisers to the Secretary, P.O. Box 5316, Johannesburg.

THE ECONOMIC RECORD

Vol. XXXVII — The Journal of the Economic Society of Australia and New Zealand — No. 77

MARCH, 1961

The Australian Economy, March 1961 . . . . . P. H. KARMEL

ARTICLES

Restrictive Practices and Monopolies in Australia . . . . . ALEX. HUNTER
The Radcliffe Report: A Distant View . . . . . D. G. ROWAN
Tariffs, Protection and The Terms of Trade . . . . . I. A. MCDOUGALL
The Meaning of Production Indexes . . . . . F. B. HORNER

NOTES

Obituary—Dr. Edward Percy Neale . . . . . H. BELSHAW
A Gold Guarantee For Sterling Further Considered . . . . . J. O. N. PERKINS
Protection of the Australian Dairying Industry: A Comment . . . H. R. EDWARDS and N. T. DRANE
A Further Comment . . . . . WILFRED CANDLER
Rejoinder . . . . . R. I. DOWNING and P. H. KARMEL

NEWS AND NOTES

REVIEWS

Index to Volume XXXVI

Annual Subscription £2 2s. 0d. — Published four times a year. — Single copies 14s.

MELBOURNE UNIVERSITY PRESS

Registered in Australia for transmission by post as a periodical

Members of the Royal Economic Society may join the Economic Society of Australia and New Zealand at the reduced rate of 26s. 6d. (Australian). Subscriptions must be forwarded to the Secretary, Royal Economic Society, 21 Bentinck Street, London, W.1.

KYKLOS

International Review for Social Sciences

Vol. XIV, 1961, Fasc. 2

Some Problems in the Theory of Growth and Planning Policy . . . . . MAURICE DOBB
The International Disequilibrium System . . . . . ROBERT A. MUNDELL
Marktspaltungen . . . . . HANS WILLGERODT
Indicators for the National Accounts in Under-developed Countries . . . . . ENRIQUE LERDAU
Prolegomena to a Theory of Social Change . . . . . E. K. FRANCIS
The Stages of Economic Growth . . . . . P. A. BARAN and E. J. HOBSBAWM
Besprechungen—Comptes rendus—Reviews
Bibliographie—Bibliography
Autoren—Auteurs—Authors

All articles are followed by trilingual summaries. Published quarterly. Annual subscription Swiss Fr. 26.00, postage included.

Order from the publisher:

KYKLOS-VERLAG, POSTFACH 785, BASEL 2, SWITZERLAND

ECONOMIA INTERNAZIONALE

QUARTERLY REVIEW

VOLUME XIV, NO. 2 — CONTENTS — MAY, 1962

Si rivelano i valori ombra al saggio di interesse di mercato? . . . . . L. ARGIROS
Economies of Scale in the European Common Market . . . . . B. BALASSA
A Structural Study of International Capital Movement . . . . . S. CHAKRAVARTY
The Concept of Compensatory Official Financing: A Restatement for Balance-of-Payments Policy . . . . . R. KUMAR
Un modello interpretativo della distribuzione dei redditi . . . . . F. BRAMBILLA
A Note on the Foreign Trade Multiplier . . . . . Y. SHINKAI
Il piano di stabilizzazione dell'economia spagnola . . . . . J. M. NAHARRO

Bollettino Bibliografico ed Emeroteca: Books Review—Titles of articles on recent periodicals. Summary of articles issued on recent periodicals.

Annual subscriptions to "ECONOMIA INTERNAZIONALE" It. Liras 5.000. Applications for subscription and correspondence should be addressed to the Direzione Istituto di Economia Internazionale, via Garibaldi 4, Genova (Italy).

METROECONOMICA

INTERNATIONAL REVIEW OF ECONOMICS

VOLUME XIII, No. 3

On a class of preference fields . . . . . **W. M. Gorman**
Investment horizon . . . . . **J. Hirshleifer**
Walrasian theory of money . . . . . **R. S. Kurihara**
Some notes on Cobb-Douglas production function . . . . . **A. A. Walters**

Board of Editors: G. Bruciani Turroni, E. Fossati (*Managing Editor*), R. Frisch, W. Leontief, G. Lutfalla, A. Mahr, J. Marschak, G. U. Papi, R. W. Pfouts, R. Roy, E. Schneider, G. L. S. Shackle, R. Stone, J. Tinbergen, G. Tintner, L. Zeuthen.

Published every four months. Subscriptions $7 per year (two years $12). Communications to the editor to be addressed: *Professor Ennio Fossati*, director of the Laboratorio di economia Vilfredo Pareto, *Università*, via Balbi 5, *Genova* (*Italy*). Communications regarding subscriptions to be addressed: *Licinio Cappelli*, corso Italia, 18, *Trieste*, (Italy) or *G. E. Stechert-Hafner* Inc., 31, East Tenth Street, New York 3, N.Y. (U.S.A.).

PUBLIC FINANCE/FINANCES PUBLIQUES

International quarterly journal

founded by J. A. Monod de Froideville
Directors: M. Masoin, A. T. Peacock, B. Schendstok, P. Senf

Volume XVI, 1961 **No. 1**

Debt management
Travaux de l'Institut International de Finances Publiques
XVIIe Session Congrès de Zurich 1960
Rapporteur Général

Debt Management—A General Report . . . . . **Edward Nevin (Aberystwyth)**

Rapporteurs Nationaux

British Public Debt Policy—Rapport anglais . . . . . **Edward Nevin (Aberystwyth)**
L'Evolution de la Dette Publique en France depuis 1945 et ses Enseignements en Matière de "Debt Management"—Rapport français . . . . . **Hubert Brochier (Grenoble)**
Debt Management in den Niederlanden seit 1945—Rapport nèerlandais . . . **C. Goedhart (Amsterdam)**
Debt Management: Some Theoretical Aspects—Rapport américain . . . **Earl R. Rolph (Berkeley)**
Book Reviews/Comptes Rendus

Correspondence should be addressed to Prof. Dr. P. Senf, Universität des Saarlandes, Saarbrücken 15, Germany.

Orders may be placed with the representative Emgee Foreign Publications, 44 *Chandos Place, London, W.C.2*, or directly with the Administration, 150 Rioowstraat, The Hague, Netherlands. Subscription rate for 1 year: £3 14s. 0d.

THE JOURNAL OF POLITICAL ECONOMY

The August 1961 issue contains: **Edited by Harry G. Johnson**

Industrialization, Factor Markets, and Agricultural Development . . . **William H. Nicholls**
The Economic Theory of Socialism: A Suggestion for Reconsideration . . **Jan Drewnowski**
Flight Insurance and the Theory of Choice . . . . **Robert Strotz and Robert Eisner**
The Economy of Patronage . . . . . **James Q. Wilson**
Integration and Competition in the Oil Industry: A Review Article
Harold F. Williamson and Ralph Loud Andreano
A Note on Convexity of the Aggregate Production Set . . . . . **Stanley Reiter**
Book Reviews and Books Received

FOUNDED IN 1892. Published bi-monthly: February, April, June, August, October, December. Subscription rate for U.S.A. and possessions, $6.00 per volume; for Canada and Pan American Postal Union, $6.50; for all other countries, $7.00. Single copies, $1.75. Special rates: $5.00 per volume for faculty members teaching business or economics. $3.00 per volume for graduate students in business or economics.

The University of Chicago Press—5750 Ellis Avenue, Chicago 37, Ill.

ECONOMETRICA

JOURNAL OF THE ECONOMETRIC SOCIETY

Vol. 29, No. 2, April, 1961

Aggregation of Variables in Dynamic Systems . . . . **Herbert A. Simon and Albert Ando**
On the Cost of Approximate Specification in Simultaneous Equation Estimation . **Franklin M. Fisher**
The Graduation of Income Distributions . . . . . **Peter R. Fisk**
Behavioristic Foundations of Utility . . . . . **Patrick Suppes**
Nonlinear Programming by the Simplex Method . . . . . **H. O. Hartley**
Aggregation in Leontief Matrices and the Labour Theory of Value . . **M. Morishima and F. Seton**
A Note on "Aggregation in Leontief Matrices and the Labour Theory of Value" . . **Leif Johansen**
A Note on the Residual Variance Estimation in Simultaneous Equations . . . **A. L. Nagar**
A Note on the General Possibility Theorem of the Social Welfare Function . . . **Yasuhiko Murakami**
On the Existence of General Equilibrium: Some Corrections . . . . **Lionel W. McKenzie**
Report of the St. Louis Meeting
Report of the Stanford Meeting
Book Reviews Letter to the Editor Announcements and Notes

Subscription to Non-Members: $10.00 per year.

Subscriptions to Econometrica and inquiries about the work of the Society and the procedure for applying for membership should be addressed to Richard Ruggles, Secretary, The Econometric Society, Box 1264, Yale University, New Haven, Connecticut.

THE AMERICAN ECONOMIC REVIEW

VOLUME LI, NUMBER 3 — **JUNE, 1961**

ARTICLES

The Short Cycle in Residential Construction 1946–59 — Jack M. Guttentag
The Cyclical Sensitivity of the Labor Supply — W. Lee Hansen
Effect of Tariff Changes on the Prices and Volume of Imports — Mordechai E. Kreinin
Karl Marx and Soviet National Income Theory — Vaclav Holesovsky
Problems and Possibilities of Industrial Price Control: Postwar French Experience — John Sheahan

REVIEW ARTICLE

Equilibrium Growth Models — Joan Robinson

COMMUNICATIONS

Research, Invention, Development and Innovation — Edward Ames
Foreign Exchange Guarantees and the Dollar — Sterie T. Beza and Gardiner Patterson
The Wellesley Undergraduate Tutorial — Richard V. Clemence
Windfall Income and Consumption—Additional Evidence — Mordechai E. Kreinin
A Model of Price Flexibility: Comment — Werley J. Yordon
Reply — Joseph V. Yance
Patterns of Industrial Growth: Comment — Bela Balassa

The **American Economic Review**, a quarterly, is the official publication of the American Economic Association. Annual dues or subscriptions are six dollars. Address editorial communications to Dr. Bernard F. Haley, Editor, **American Economic Review**, Stanford University, Stanford, California. For information concerning other publications and activities of the Association communicate with the Secretary-Treasurer, Dr. James Washington Bell, American Economic Association, Northwestern University, Evanston, Illinois. Send for information booklet.

THE QUARTERLY JOURNAL OF ECONOMICS

Vol. LXXV — **Number 3** — **August 1961**

Objective Functions and Models of Corporate Optimization — Martin Shubik
The Economics of Fashion Demand — Dwight E. Robinson
Information, Expectations and the Theory of the Firm — H. B. Malmgren
Schumpeter and the Underdeveloped Countries — Douglas Rimmer
On Measuring Productive Potential and Relative Efficiency — Richard H. Moorsteen
Backward-Sloping Labor Supply Functions in Dual Economies—The Africa Case — Elliot J. Berg

Notes and Discussions

Utility, Strategy, and Social Decision Rules
Comment . . . Gordon Tullock Reply — William Vickrey
Steel, Administered Prices, and Inflation
Comment . . . George Macesich Reply — M. A. Adelman
Balanced Growth and the Two-Good, Two Factor General Equilibrium Model
Comment — M. Bruce Johnson
An Alternative Exposition of the Factor Price Equalization Theorem — William Paul Smith

Recent Publications

Edited by Arthur Smithies for the Department of Economics, Harvard University

$1.75 *per copy*; $6.00 *a year*; 3 *years* $17.00; *Special Student Rate*, $3.00 *a year*

Order from the Harvard University Press, Cambridge 38, Massachusetts

ECONOMIE APPLIQUÉE

Archives de l'Institut de Sciences Economiques Appliqués

(The French Journal of Economic Science)

Directeur: François Perroux, *Secrétaire Général:* H. Bonjour, I.S.E.A., 35 Boulevard des Capucines, Paris, 2ème

VOLUME XIV, Nos. 2-3 — **APRIL-SEPTEMBER, 1961**

Introduction — F. Rubio
Remarques sur l'introduction de la notion de progrès technique dans la science économique — J. Fourastié
Recherche-développement et production — W. G. Waffenschmidt
Des interconnexions de la recherche et des processus de développement dans les pays industrialisés — R. Pré
L'offre d'inventeurs et d'inventions — F. Machlup
Invention et recherche technique — F. Machlup
Elaboration d'un programme de recherches — P. Jacquemin
Conditions de l'innovation industrielle — B. R. Williams
Variations par secteurs de l'effort de recherche-développement en Grande-Bretagne — B. R. Williams
La répartition des inventions dans l'industrie — J. Schmookler
Recherche scientifique pure et recherche appliquée: leurs relations — Ch. Sadron
Recherche officielle et recherche privée — F. Rosin
Recherche militaire et économie — Général Guérin
Stratégie de la propagation de l'information technique dans les milieux agricoles — L. Estrangin
La théorie économique de l'éducation dans les sociétés en voie de développement — R. L. Meier
La recherche-développement considérée comme facteur de production — D. B. Hertz
La stratégie et l'économique de la recherche — S. S. Sengupta
Le développement économique de l'Algérie (Cahier F-25) — J. Guillot
L'investissement dans les pays d'outre-mer (Cahier F-15) — G. Leduc, Y. Le Portz, Y. Ould Aïda, G. de Bernis, M. Filali, P. Rauchet, A. Benkirane, M. Capet, G. d'Arbouhier, L. Rey, Lê Thanh Khôi, K. Samphan
Le Progrès (Cahier M-9) — J. Lacroix, G. Granger, H. Lefebvre, R. Boirel, F. Meyer, S. Lantieri, J. Pussier, K. E. Boulding, F. Perroux, V. Marrama, P. Lambert

PUBLICATIONS OF THE ROYAL ECONOMIC SOCIETY

	Price to Members £ s. d.	Published Price £ s. d.
A Catalogue of the Library of Adam Smith. Prepared by J. BONAR	12 6	1 1 0
Official Papers. By ALFRED MARSHALL	2 6	10 6
The Letters of David Hume. Edited by J. Y. T. GREIG (2 vols.)	1 7 6	2 10 0
The Works of Ricardo. Vols. I to X Edited by P. SRAFFA Each vol.	16 0	1 4 0
Jeremy Bentham's Economic Writings. Edited by W. STARK. Set of 3 Vols.	1 10 0	
Separate volumes. Vol. I	12 6	1 10 0
„ II	12 6	2 0 0
„ III	12 6	2 5 0
Walras' Elements of Pure Economics. Edited by W. JAFFÉ	1 8 0	2 2 0
University Teaching of the Social Sciences: Economics. Edited by C. W. GUILLEBAUD	7 0	11 6
Studies in Economic History. By GEORGE UNWIN	1 15 0	2 15 0
Cantillon's Essai sur la Nature du Commerce en Général. Edited by H. HIGGS	1 5 0	2 2 0

Application, including remittance, should be made by Members to:

The Secretary,
ROYAL ECONOMIC SOCIETY,
21 BENTINCK STREET,
LONDON, W.1

ROYAL ECONOMIC SOCIETY

PATRON:

HER MAJESTY THE QUEEN

COUNCIL:

President

PROFESSOR J. R. HICKS, F.B.A.

Vice-Presidents

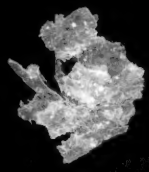
LORD BEVERIDGE, K.C.B., D.Sc., F.B.A.
SIR ALEXANDER CARR-SAUNDERS, K.B.E., LL.D., Litt.D., F.B.A.
PROFESSOR SIR ALEXANDER GRAY, C.B.E.
SIR ROBERT HALL, K.C.M.G., C.B.
PROFESSOR SIR RALPH HAWTREY, C.B., F.B.A.
LORD ROBBINS, C.B., F.B.A.
PROFESSOR SIR DENNIS ROBERTSON, C.M.G., F.B.A.
PROFESSOR R. H. TAWNEY, F.B.A.

Professor G. C. ALLEN, C.B.E.
Professor R. G. D. ALLEN, C.B.E., F.B.A.
Mr. W. M. ALLEN.
Professor A. J. BROWN.
Professor E. H. PHELPS BROWN, M.B.E., F.B.A.
Sir SYDNEY CAINE, K.C.M.G.
Professor A. K. CAIRNCROSS, C.M.G., F.B.A.
Professor S. R. DENNISON, C.B.E.
Professor E. DEVONS.
Mr. C. W. GUILLEBAUD, C.B.E.
Professor H. J. HABAKKUK.
Professor H. HAMILTON.
Mr. F. E. HARMER, C.M.G.
Sir ROY HARROD, F.B.A.
Mr. N. KALDOR.
Mr. W. KING.
Sir DONALD MACDOUGALL, C.B.E. (*Hon. Secretary*).
Professor J. E. MEADE, C.B., F.B.A.
Professor E. V. MORGAN.
Mr. H. C. B. MYNORS.
Professor A. T. PEACOCK.
Professor Sir ARNOLD PLANT (*Hon. Secretary*).
Mrs. JOAN ROBINSON, F.B.A.
Mr. C. T. SAUNDERS, C.M.G.
Professor R. S. SAYERS, F.B.A.
Professor G. L. S. SHACKLE.
Professor J. H. B. TEW.
Professor B. THOMAS, O.B.E.
Professor R. C. TRESS.
Professor G. J. WALKER.

Professor E. A. G. ROBINSON, C.M.G., O.B.E., F.B.A., *Joint Editor & Secretary.*
Professor C. F. CARTER, *Joint Editor.*
Mr. R. C. O. MATTHEWS, *Assistant Editor.*
Mr. A. D. MARRIS, C.M.G., *Hon. Treasurer.*
Mr. A. FULLER, *Assistant Secretary.*

Applications for Fellowship should be addressed by letter to the Secretary, Royal Economic Society, 21 Bentinck St., London, W.1. The Annual Subscription is fifty shillings. Any Fellow may compound for his future annual subscriptions by paying at once the sum of thirty-seven pounds ten shillings, subject, in the case of members who have already paid ten annual subscriptions, to a reduction of eight shillings in respect of every year for which such annual subscription has been paid, provided that the composition fee does not fall below thirty pounds. There is at present no entrance fee. Libraries, Institutions and Companies are admitted to the Society with full rights to receive all its publications at an Annual Subscription of fifty shillings. They are entitled to compound their subscriptions for a period of fifteen years on payment of thirty-three pounds.

Editorial Communications and **Books and Periodicals for Review** should be addressed to the Editor, Royal Economic Society, The Marshall Library, Downing St., Cambridge.

Communications respecting Advertisements should be addressed to the Secretary, Royal Economic Society, The Marshall Library, Downing St., Cambridge.

Printed in Great Britain by Richard Clay and Company, Ltd., Bungay, Suffolk